Harris, Bilal

From: Vineyard, Dan [dvineyard@jw.com]
Sent: Monday, December 23, 2013 4:19 PM
To: Coleman, Karen
Cc: Harris, Bilal
Subject: Reef Environmental

Karen: When we spoke, you told me that you could let me know who all received the Nov. 21 General Notice Letter, Information Request regarding the subject site, but that I needed to request that information. I would very much appreciate it if you could let me know who all got the letter.

It may ultimately be helpful to you if we were able to organize some of the smaller parties and be in a position to respond together.

Thank you.

Dan

Dan Vineyard
Partner
Jackson Walker L.L.P.
1401 McKinney Suite 1900
Houston, TX 77010
O: (713) 752-4277
F: (713) 308-4177
dvineyard@jw.com
www.jw.com

Harris, Bilal

From: Vineyard, Dan [dvineyard@jw.com]
Sent: Friday, January 10, 2014 6:10 PM
To: Coleman, Karen
Cc: Harris, Bilal
Subject: Reef Environmental

Karen: I emailed New Process Steel's response to you, but it got kicked back. A copy was also put in the mail to you this date, so you should get it soon anyway.

I don't want to spoil it for you, but the single, non-hazardous shipment of oily water on the manifest you sent us is all we found....and we looked!

Have a great weekend, and I will look forward to visiting with you again soon.

And I do appreciate the courtesies you and Bilal showed us in this matter.

Dan

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dvineyard@jw.com
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Harris, Bilal

From: Coleman, Karen
Sent: Tuesday, January 07, 2014 12:30 PM
To: Vineyard, Dan
Cc: Harris, Bilal
Subject: RE: Reef Environmental
Attachments: Reef prelim PRP list.docx

Mr. Vineyard,

My apologies for not being able to follow up with your request until now. I have been experiencing issues accessing email from home over the holidays due to technical complications, password and firewall issues. As I am still out on leave, I am responding as soon as I am able. Attached is the preliminary PRP list that you have requested. Please note that this is a preliminary list only and the EPA has not yet determined who will be considered a responsible party as we are still in our investigation stage. Thank you.

From: Vineyard, Dan [mailto:dvineyard@jw.com]
Sent: Thursday, January 02, 2014 9:34 PM
To: Coleman, Karen
Cc: Harris, Bilal
Subject: FW: Reef Environmental

Karen: could you email me the list if you have it handy. Thank you very much, and happy new year!

Dan

From: Vineyard, Dan
Sent: Monday, December 23, 2013 3:19 PM
To: coleman.karen@epa.gov
Cc: harris.bilal@epa.gov
Subject: Reef Environmental

Karen: When we spoke, you told me that you could let me know who all received the Nov. 21 General Notice Letter, Information Request regarding the subject site, but that I needed to request that information. I would very much appreciate it if you could let me know who all got the letter.

It may ultimately be helpful to you if we were able to organize some of the smaller parties and be in a position to respond together.

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Reef Environmental Site

List of 187 PRPs that received the November 21st General Notice/ 104 (e) Letter

ABC Compounding Company, Inc.
Acadian Alliance & Transports, Inc.
Action Resources, Inc.
Agrium
Alabama Paper Products
Aleris International
Allen Oil Co.
Allied Energy Corporation
ALSCO Inc.
American Color Graphics, Inc.
American Fibers and Yarns
American Formula
American Plant Services
Armor Environmental Services, Inc.
Autauga County Board of Education
Avondale Mills
Avondale Trucking
B&B Grocery
B.R. Williams
Bates Enterprises
BE&K Construction
Bekaert Steel Wire Corporation
Benteler Automotive
Bessemer Utilities
B-H Transfer
Big Bass Bait and Tackle
Birmingham Electric Battery Co.
Birmingham Jefferson County Transit Authority
Bowman Transportation, Inc.
Buck Oil Services, Inc.
Bulldog Biodiesel
BV Aviation
Cadillac Products
Calhoun Power
Carlisle Tire Co.
Cascades Sonoco
CETCO
Chemical Lime-O'Neal Quarry
Chemstar
Choice Fabricators
Chromalloy
Consolidated Forest
Cowart
CVS
Cytec
D & J Enterprises
Dana Transport
Daniel Metal
Dayton Superior
DitchWitch
Eastern AL Railway
Elite Laundry SVC
Emerson Network Power
Enbridge Energy
Energen Resources
Ergon
ERS
Evergreen
EWS-Alabama
Express Oil Change
Express Zone
Fleetwood Metals
Flocryl Acrylates
Former BP 24257
Former Spur Station
Former Walmart
Fruits & Associates
Gann Service Station
GEO Specialty Chemicals
Georgia Pacific - Russellville
Georgia Pacific-Thorsby
Glory LLC
Golden & Associates
Golden Rod Feed Mill
Good Hope Contracting Co., Inc.
Gulf Coast Plating
Halstead Contractors
Hanil E-HWA
Hazama
Hexion
Holmes Oil
Hoover School Board
Howard Sheppard
Hwashin America
Hyundai
Industrial Chemical
Industrial Plant Services
Infrasource
Ingram Equipment
International Flavors & Fragrances, Inc.
J Scott Enterprises
Jade Tank Lines
JB Hunt
Kinpak
KTH Leesburg Products, Inc.
LaFarge
Lehigh Cement Co.
Linde, Inc.
Louisiana Pacific Corp.
Ludonja
Madix, Inc.
Magnum Products
Mando America
Marbury High School
McClean Fuels
MCF Systems
Metro Environmental
MIDLAB, Inc.
Midlab, Inc.

Midtown BP
Mignon Properties
Mobis Alabama, LLC
Mount Pleasant Transfer
Nemak
New Process Steel
New South Tank Wash
Norfolk Southern RR
NRTP Environmental Services, LLC
NSS Technologies
Nutech
Oak Grove Resources
Omya
One Stop Environmental
Padgett Chevron
Panasonic Energy Corporation
Panos Automotive
PPM
Progress Rail
R & H Waste Oil
R&C Grocery
Ram Environmental
Reflek Manufacturing
Rehau Corp.
Resource Innovations
Roadrunner Express Delivery Service LLC
Robbie D. Wood
Rogers Cartage
Rudd's Carwash
Russell Corp/Coosa River Plant
Ryerson Tull
Safety Kleen
Safeway Industrial
SCS Trucking
Sherwin Williams
Shoreline Environmental
Simcala
Southern Natural Gas Company, LLC
Spectrum Industrial Svc
Speedrack
SpeedZ
Stellar
Stranco
Suttles Truck Leasing, Inc.
Morris Avenue Management Group, Inc. (Superior Bank)
SWS Environmental Services
Tenaska
Teppco
Tessendero Kerley
Thermasys
Thyssen Krupp
Tom's Radiator
Transco Gas Pipe Line
Trinity Industries
Triple S Refining
Trox USA
Tubular Products
Union Foundry
United Food & Fuel
United Industries
Universal Environmental
US Army Garrison
US Biofuels
US Pipe Foundry
Valley Consumer Products
Vanity Fair Brands, LLC
Video Industrial
Vulcan Materials
Walpole
Webb Wheel
Wiley Sanders Truck Lines, Inc.
Williams Gas Pipeline - Transco
Wilsonville Powerwash
Winter Environmental Services, Inc.
WR Grace
Yamaha
Zeneca
Zep

Harris, Bilal

From: Vineyard, Dan [dvineyard@jw.com]
Sent: Monday, December 23, 2013 11:32 AM
To: Harris, Bilal
Cc: Coleman, Karen
Subject: RE: Reef Environmental

Thank you.

Dan

From: Harris, Bilal [mailto:Harris.Bilal@epa.gov]
Sent: Monday, December 23, 2013 10:23 AM
To: Vineyard, Dan
Cc: Coleman, Karen
Subject: RE: Reef Environmental

Mr. Vineyard,

This email grants your request for an extension. Your response is now due on or before January 10, 2014. Thank you.

Bilal M. Harris
Attorney-Adviser
U.S. Environmental Protection Agency, Region 4
Office of Environmental Accountability
61 Forsyth Street, S.W.
Atlanta, Georgia 30303
Phone: 404-562-8493
Fax: 404-562-9486
harris.bilal@epa.gov

From: Vineyard, Dan [mailto:dvineyard@jw.com]
Sent: Monday, December 23, 2013 11:19 AM
To: Harris, Bilal
Subject: Reef Environmental

Bilal: Thanks so much for your return call authorizing an extension of time within which to respond to the Request for Information sent to New Process Steel related to the subject site.

Your consideration is very much appreciated.

Merry Christmas to you and enjoy the holidays.

Dan Vineyard
Partner
Jackson Walker L.L.P.
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Houston, TX 77010
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F: (713) 308-4177
dvineyard@jw.com
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Harris, Bilal

From: Vineyard, Dan [dvineyard@jw.com]
Sent: Tuesday, January 07, 2014 12:58 PM
To: Coleman, Karen
Cc: Harris, Bilal
Subject: RE: Reef Environmental

Thank you very much.

Dan

From: Coleman, Karen [mailto:Coleman.Karen@epa.gov]
Sent: Tuesday, January 07, 2014 11:30 AM
To: Vineyard, Dan
Cc: Harris, Bilal
Subject: RE: Reef Environmental

Mr. Vineyard,

My apologies for not being able to follow up with your request until now. I have been experiencing issues accessing email from home over the holidays due to technical complications, password and firewall issues. As I am still out on leave, I am responding as soon as I am able. Attached is the preliminary PRP list that you have requested. Please note that this is a preliminary list only and the EPA has not yet determined who will be considered a responsible party as we are still in our investigation stage. Thank you.

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dvineyard@jw.com
www.jw.com

1. NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of 1	3. Emergency Response Phone 888-739-0830	4. Waste Tracking Number 012309C

5. Generator's Name and Mailing Address: New Process Steel, PO Box 113, Gadsden AL 35904 | Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name: Specialized Industrial Services, Inc | U.S. EPA ID Number: ALR000044743

7. Transporter 2 Company Name: | U.S. EPA ID Number:

8. Designated Facility Name and Site Address: Gulf Environmental, 11 Third St, Talladega AL | U.S. EPA ID Number:

Facility's Phone: 256-208-0160

	9. Waste Shipping Name and Description	10. Containers No.	Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non-Hazardous only water	001	FF	1500	G	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information

P.O. # 9235 Job # 1815-008 pH 7.3

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator/Offeror's Printed/Typed Name	Signature	Month	Day	Year
Ed Overcash		1	23	09

15. International Shipments: ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name	Signature	Month	Day	Year
Kyle Loesch		1	23	09
Transporter 2 Printed/Typed Name	Signature	Month	Day	Year
Scott W Moran		1	26	09

17. Discrepancy

17a. Discrepancy Indication Space: ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) | U.S. EPA ID Number:

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) | Month | Day | Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by this manifest except as noted in Item 17a

Printed/Typed Name	Signature	Month	Day	Year
Calvin Dye		1	26	09

GENERATOR | TRANSPORTER 1 INTL | TRANSPORTER 2 | DESIGNATED FACILITY

169-BLC-016 10498 (Rev. 8/06) DESIGNATED FACILITY'S COPY

New Process Steel (G)

JACKSON WALKER L.L.P.
ATTORNEYS & COUNSELORS

Daniel E. Vineyard
(713) 752-4277 (Direct Dial)
(713) 308-4177 (Direct Fax)
dvineyard@jw.com

January 10, 2014

Via Certified Mail, RRR # 7196 9008 9111 0441 9851
And Email
Ms. Karen Coleman
United States Environmental Protection Agency
Region 4, SD-SEIMB 11th Floor
61 Forsyth Street, S.W.
Atlanta, GA 30303

Re: Reef Environmental Site
71 Twin Street, Sylacauga, Talladega County, Alabama

Dear Ms. Coleman:

Attached please find the responses of New Process Steel to your request for information related to the Reef Environmental Site. As you can see, after a diligent file review and interviewing plant personnel, the only connection we can see with the subject site is the single manifest you sent to us showing the disposal of non-hazardous oily water.

I would respectfully request that you delete New Process Steel from your list of potentially responsible parties at this Site.

Please feel free to contact me if you wish to discuss this matter further.

Respectfully,

D.E. Vineyard

Daniel E. Vineyard

DEV:klc

Enclosures

ATTACHMENT A

1. Identify the person(s) answering these questions on behalf of Respondent, including all persons consulted in answering these questions and the documents consulted, examined, or referred to in preparation of answering these questions. Provide true and accurate copies of all such documents.

Response to Question 1:

Daniel E. Vineyard, Esq.
Jackson Walker L.L.P.
1401 McKinney St., Suite 1900
Houston, TX 77010
713-752-4277
Position: Counsel

Grant Tolbert Plant Manager, Alabama facility.
New Process Steel

Greg Bach
New Process Steel
Position: Former Plant Manager at NPS' Alabama facility.

2. Identify the primary contact person(s) to whom the EPA may send future correspondence by:

   a. Full name and title;
   b. Mailing address and physical address; and
   c. Daytime telephone number.

Response to Question 2:

Daniel E. Vineyard, Esq.
Jackson Walker L.L.P.
1401 McKinney St., Suite 1900
Houston, TX 77010
713-752-4277

3. Identify your company by:

   a. Legal name, including any "doing business as" name;
   b. Date and state of incorporation or organization;
   c. Complete mailing and physical address of the central office;
   d. Name and mailing address of your registered agent;
   e. Provide a copy of the most current Articles of Incorporation and By-laws;
   f. Identify all branches, subsidiaries, and parent companies;

g. Identify all corporate officers, directors, managers, and majority shareholders for the last five (5) years. Provide their names, titles, telephone numbers and home addresses. Also, identify for each person listed, the nature of their management duties and amount of shares held respectively.

Response to Question 3:

a. (1) New Process Steel, L.P.; (2) New Process Steel Corporation
b. (1) 3/9/2000, DE; (2) 4/7/1988, DE
c. 1322 N. Post Oak Rd., Houston, TX 77055
d. Frances P. Hawes, 1322 N. Post Oak Rd., Houston, TX 77055;
e. NPS objects to this question because it seeks information which is irrelevant to the subject of the information request, which is the Reef Environmental Site.
f. NPS objects to this question as being overly broad and seeks information which is irrelevant to the subject of this information request, which is the Reef Environmental Site. Subject to and without waiving these objections, NPS responds that it has a facility located on Valley Road, P.O. Box 113, Fairfield, Alabama 35064;
g. NPS objects to this question as being overly broad and seeks information which is irrelevant to the subject of this information request. Subject to and without waiving these objections, NPS responds that the Plant Manager at NPS' Fairfield, Alabama facility is Grant Tolbert.

4. Describe the past and current nature of your business activities and operations.

a. Provide a general description of any major production processes at each facility;
b. Identify any hazardous substances, pollutants, contaminants, materials or other waste streams generated at each facility.

Response to Question 4:

a. Flat rolled sheet distribution, processing, and manufacturing;
b. See attached Material Safety Data Sheets for materials used at NPS' Fairfield, Alabama facility.

5. If your company is no longer doing business, provide:

a. The date you ceased doing business;
b. The date of any corporate dissolution;
c. Copies of documents effecting dissolution;
d. A narrative and any supporting documents illustrating the distribution of company assets at the end of doing business;
e. Complete information about any bankruptcy filing, including a copy of your Statement of Financial Affairs, along with copies of any other relevant bankruptcy documents;
f. List all names under which your company or business has ever operated and has ever been incorporated.

Response to Question 5:
Not applicable.

6. Identify the legal entity that would be responsible for the liabilities of Respondent arising from or relating to any release or threatened release of hazardous substances at the Site, including, but not limited to, successors and individuals.

Response to Question 6:
NPS objects to this question as it appears from its investigation, NPS has no liability related to the Site. Subject to and without waiving its objection, Respondent responds: New Process Steel Corporation

7. Has the Respondent ever transferred, accepted, arranged, transported, delivered, treated, stored, disposed, or otherwise handled hazardous substances, pollutants, contaminants or materials at the Site. Materials include but are not limited to wastewater and waste oil? If so, provide the following:

   a. Name, address and telephone number of the waste hauler or arranger;
   b. Specify the nature, volume, and content of each shipment;
   c. State whether any sampling was done by you and/or Reef Environmental on each shipment; and
   d. Copies of all tests, analyses, and sampling results.

Response to Question 7:
After a thorough review of its files, Respondent is only aware of a single transaction related to the Site. All information available regarding this transaction is set forth on the manifest EPA sent as Enclosure A.

8. Produce all manifests and/or other documents, aside from the manifest and/or documents already attached as Enclosure A, concerning the transportation or arrangement of each shipment identified in the previous question. Include agreements with all arrangers and/or waste haulers identified in the previous question.

Response to Question 8:
NPS has found no additional manifests and/or documents concerning the transportation or arrangement of any wastes to the Site other than the non-hazardous manifest attached as Enclosure A to EPA's notice letter.

9. List all federal, state and local permits and/or registrations issued to Respondent for the transport and/or disposal of materials.

Response to Question 9:
NPS objects to this question as being overly broad and seeks information which is irrelevant to the subject of this information request. Subject to and without waiving these objections, Respondent does not transport materials for disposal.

10. Identify the person who selected the Site as the location to which Respondent took the materials.

Response to Question 10:
Unknown at this time.

11. Were there times and circumstances in which Reef Environmental did not accept a shipment from Respondent to treat its waste stream? If yes, provide an explanation as to why the shipment was rejected. Include sampling results and copies of all manifests and/or other documents related to that shipment.

Response to Question 11:
Not applicable. It is not believed that NPS had other than the one shipment of non-hazardous waste taken to the Reef Environmental Site.

12. Provide a list of all of your company's property and casualty insurance policies (e.g., comprehensive general liability, environmental impairment liability, and automobile liability policies taken out during its years of operation). Specify the insurer, policy number, effective dates, and state the per occurrence policy limits for each policy. Copies of policies may be provided in lieu of a narrative response.

Response to Question 12:
NPS objects to this question because it is overbroad.

13. State whether an insurance policy has ever been in effect which may indemnify Respondent against any liability which Respondent may have under CERCLA for any release or threatened release of a hazardous substance that may have occurred at the Site.

Response to Question 13:
NPS objects to this question because it calls for speculation and legal conclusions. Notwithstanding the objection, NPS answers that it is unknown at this time.

14. Provide any additional information and/or documents (see definition of documents) you may have that reflect, show, or evidence the use, purchase, giving, sale, transfer, acceptance, transportation, delivery, treatment, storage, disposal, or otherwise handling of hazardous substances, pollutants, contaminants or materials at the Site. Materials include but are not limited waste water and waste oil.

Response to Question 14:
No additional information has been located.

15. If any of the documents requested are not in your possession, custody, or control, or easily attainable, identify the person(s) from whom such information or documents may be obtained, and/or identify where such records would be physically located. Please

include a narrative description, along with a physical address. If the records were destroyed, provide the following:

a. Your company's document retention policy;
b. The name, job title and most current address known by you of the person(s) who would have been responsible for the retention of these documents;
c. A description of how the records were destroyed (burned, trashed, etc.) and the approximate date of destruction;
d. The name, job title and most current address known by you of the person(s) who would have been responsible for the destruction of these documents;
e. A description of the type of information that would have been contained in the documents before being destroyed; and
f. The name, job title and most current address known by you of the person(s) who had and/or still may have the originals or copies of these documents.

Response to Question 15:
Not applicable.

16. If you know of any other persons other than those you have already identified, who may be able to provide a more detailed or complete response to any Question contained herein or who may be able to provide additional responsive documents, identify such persons by providing names, current mailing addresses, current telephone numbers, and the additional information or documents that they may have.

Response to Question 16:
Not applicable.

MATERIAL SAFETY DATA SHEET

PHONE 205-592-0844 COMPLIES WITH OSHA 29CFR 1910.1200 EMERGENCY: 800-255-3924 (Transportation)

SECTION I: PRODUCT IDENTIFICATION

NAME: GREASEATERS
CODE: SO98C
MANUF: K-Chem, Inc.
ADDRESS: P.O.Box 530632, Birmingham, AL 35253
HAZARD CLASS: Combustible Liquid. PG111
GENERAL USE: Grease and Oil Removal

Date: 12/27/94
Revn:

HMIS
0-Minimal 1-Slight 2-Moderate
3-Serious 4-Extreme
HEALTH: 0 FIRE: 2 REACT. 0 PP: B

SECTION II: INGREDIENTS

CHEMICAL NAME	CAS#	%WT	%VOL	313	PEL	TWA	CARCINOGEN
DOWANOL DPM	34590-94-8	5-25	5-25		100 ppm	100ppm	
SOLVENT 142 HT	64742-88-7	25-95	25-95	No	100ppm	100ppm	NO

SECTION III: PHYSICAL DATA

BOILING POINT: 350-415 F
pH: N/A
APPEARANCE: Light Colored Green
ODOR: Typical

SOLUBILITY IN WATER: Negligible
VAPOR PRESSURE: <5 mm Hg
VOLATILE : 6.59 lbs.VOCs
SPECIFIC GRAVITY: 0.79

SECTION IV: FIRE AND EXPLOSION

FLASH POINT: Above 167 F
EXTINQUISHING MEDIA: Use water fog, dry chemical or CO2. Do not use direct water stream as product will float to a source of ignition.
SPECIAL FIRE FIGHTING PRICEDURES: Clear area of unprotected personnel. Do not enter confined fire space without helmet with face shield, bunker coats, gloves and rubber boots, including a positive pressure NIOSH approved self-contained breathing apparatus. Cool fire exposed containers with water
UNUSUAL FIRE HAZARDS: Vapor pressure will build up in containers exposed to intense heat. Rupture could occur. Use water to keep containers cool.

SECTION V: REACTIVITY DATA

STABILITY: Stable
INCOMPATIBILITY: Oxidizing agents, heat, flames
HAZARDOUS DECOMPOSITION: Carbon Monoxide and unidentified organic compounds may be formed during combustion.

SECTION VI: STORAGE AND HANDLING

Store in a cool, dry area. Keep sealed. Store away from sources of ignition. Do not smoke in or near area. If transferring from a container, reseal container drawn from.

SECTION VII: HEALTH AND FIRST AID

PRIMARY ROUTES OF ENTRY AND EFFECTS

EYES: Mildly irritating to the eyes.
SKIN: Slightly to moderately irritating to the skin. Prolonged contact can result in defatting, irritation and dermatitis.
INHALATION: Exposure to high concentrations may result in central nervous system depression, headache, dizziness and nausea, unconciousness and death.
INGESTION: May result in vomiting. Aspiration of vomitus into lungs must be avoided as even small quantities may result in aspiration pneumonitis. Do not insuce vomiting.

FIRST AID PROCEDURES

EYES: Immediately flush eyes with plenty of water for 15 minutes while holding eyelids open. Get medical attention.
SKIN: Flush skin with water. Remove contaminated clothing. If irritation occurs, get medical attention.
INHALATION: Remove victim to fresh air and provide oxygen if breathing is difficult. If not breathing, give artificial respiration. Get medical help.
INGESTION: Do not induce vomiting. If vomiting occurs, keep head below hips to prevent aspiration of liquid into lungs.

SECTION VIII: SPECIAL PROTECTION

RESPIRATORY: Avoid prolonged or repeated breathing of solvent vapors. If exposure should exceed occupational exposure limits, use a Niosh-approved respirator to prevent overexposure. In accordance with 29 CFR 1910.134 use either an atmosphere-supplying respirator or an air-purifing respirator for organic vapors.
SKIN: Avoid prolonged contact with skin. Wear chemical resistant gloves and protective clothing to minimize contact. PVA gloves are normally the best.
EYES: Protect eyes with chemical goggles.

SECTION IX: SPILL OR LEAK PROTECTION

SPILL PROTECTION: WARNING: Eliminate all ignition sources.

MATERIAL SAFETY DATA SHEET

COMPLIES WITH OSHA'S HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200)

SECTION I · PRODUCT IDENTIFICATION

Product Name: Mr. Kwik Safety Solvent
Product Number: SO32A
Product Type: AEROSOL
Supplier's Name: K-Chem, Inc.
Supplier's Address: P.O. Box 530632, Birmingham, AL 35253-0632
D.O.T. Hazard Class: CONSUMER COMMODITY, ORM-D

Formula: Proprietary
Date Prepared: 11/06/07
Emergency Phone: (800) 255-3924
Information Phone: (205) 592-0844

HMIS Rating (Based on Aerosol Conc.):
0-Minimal 1- Slight 2- Moderate
3- Serious 4- Extreme
HEALTH: 2 FIRE: 0 REACTIVITY: 1
Personal Protection : G

SECTION II · INGREDIENTS

CHEMICAL NAME	CAS #	%WT	313/Chem	Skin	Carcinogen	PEL	TLV - TWA
Trichloroethylene	79-01-6	90-100	YES	NO	YES	100 ppm	10 ppm
Isopropyl Alcohol	67-63-0	01-10	NO	NO	NO	400 ppm	400 ppm
Butylene Oxide	106-88-7	< 0.5	YES	NO	YES	N/E	2 ppm*
Carbon Dioxide Propellant	124-38-9	01-10	NO	NO	NO	10,000 ppm	10,000 ppm

*Recommended Workplace Environmental Exposure Level (WEEL).

SECTION III · PHYSICAL DATA

Data Below Based On Aerosol Concentrate Only:
Boiling Point: ~186°F
pH: N/A
Solubility In Water: negligible
Appearance/Odor: Clear, colorless liquid / Ether-like odor
Data Below Based On Total Contents:
Vapor Pressure of can (psig @70°F): 90
Total VOC %: 97 %

Vapor Density(Air=1): 4. 5
Specific Gravity (H_2O=1)@75°F: 1.419

SECTION IV · FIRE AND EXPLOSION DATA

Flash Point (of Concentrate Only): None to Boiling
Extinguishing Media: Foam, CO_2, Dry Media
Flammability (as per USA Flame Projection Test): Non-Flammable Spray
Special Fire Fighting Procedures: Wear self-contained breathing apparatus and protective clothing. Cool fire exposed containers to prevent rupturing.
Unusual Fire and Explosion Hazards: Exposure to temperature above 120° F may cause bursting.

SECTION V · REACTIVITY DATA

Stability: Material Stable.
Incompatibility: Avoid contact with strong oxidizing agents.
Hazardous Polymerization: Will not Occur.
Hazardous Decomposition Products: Carbon Dioxide, Carbon Monoxide, Hydrogen Chloride, Small amount of Phosgene.

SECTION VI · STORAGE AND HANDLING

KEEP OUT OF REACH OF CHILDREN.
For Industrial and Institutional use only.
Store in a cool, dry area away from heat or open flame.
Do not store at temperatures above 120° F.
NFPA Code 30B Rating: Level 1 Aerosol.

SECTION VII · HEALTH AND FIRST AID

PRIMARY ROUTES OF ENTRY & EFFECTS OF OVER EXPOSURE:
Eyes: Causes severe irritation, redness, tearing, and blurred vision.
Skin: Frequent or prolonged contact may cause irritation and possibly dermatitis. May aggravate existing skin conditions.
Inhalation: Inhalation of mist can cause irritation of nasal and respiratory passages. Abusive or excessive inhalation may cause irritation to the upper respiratory tract and central nervous system effects, including dizziness nausea, headaches, unconsciousness, or death. Long-term overexposure may cause liver or kidney injury..
Ingestion: Can cause gastrointestinal irritation, nausea, vomiting and diarrhea. Aspiration of material into the lungs can cause chemical pneumonitis and pulmonary edema.
FIRST AID PROCEDURES:
Eyes: Flush with large amounts of cool running water for at least 15 minutes while holding upper and lower lids open. If irritation persists get medical attention immediately.
Skin: Wash with soap and water. If irritation persists seek medical attention.
Inhalation: Remove to fresh air. Seek medical attention immediately. If breathing stops give artificial respiration.
Ingestion: Do not induce vomiting. Seek medical attention immediately.

SECTION VIII · SPECIAL PROTECTION DATA

Respiratory Protection: If workplace exposure limits are exceeded (see Section II), use a NIOSH approved air purifying respirator for single short-term exposure. Use a positive-pressure, air-supplied respirator for multiple or long-term exposures.
Ventilation: Provide local exhaust to keep air concentrations of ingredients listed in Section II below established exposure limits.
Protective Gloves: Use chemical resistant gloves to help prevent skin contact.
Eye Protection: Always wear safety glasses or chemical proof goggles when working with chemicals.

SECTION IX · SPILL OR LEAK PROTECTION

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK: Allow propellant to evaporate. Maintain local exhaust and adequate ventilation. No smoking. Keep sparks, heat sources and open flame far away from spill or leak. Cover with absorbent material and sweep up. Wash area to prevent slipping. Dispose of soaked absorbent material in accordance with Federal, State and local laws.
WASTE DISPOSAL METHOD: Aerosol cans, when emptied and depressurized through normal use, pose no disposal hazard and should be recycled. Consult Federal, State and local authorities for approved procedures.

N/A= NOT APPLICABLE · N/E=NOT ESTABLISHED · N/D=NOT DETERMINED · <=LESS THAN · >=MORE THAN

HMIS RATINGS:
Health: 2
Flammability: 1
Reactivity: 0
Personal Protection: G

Section 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Trade Name: K-CHEM 2002 SAFETY SOLVENT
Chemical Family: Aerosol
Company Identification: K-CHEM, INC
P.O. BOX 530632
Birmingham, AL 35253

Emergency Telephone Number: (800)255-3924
Date Prepared: April 25, 2003
MSDS Number: SO100A

Section 2: COMPOSITION, INFORMATION ON INGREDIENTS

CAS NUMBER	CHEMICAL NAME	% BY WGHT.	OSHA PEL/ ACGIH TLV	SARA 302/304(1)*	SARA 313 (2)*	STATE INFO(3) (4)
106-94-5	n-Propyl Bromide	< 99.0	n/e / n/e	NO	NO	NO
124-38-9	Carbon Dioxide Propellent	-	-	-	-	-

* See Section 15 for more information n/e = none established - n/a = not applicable

Section 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER. Harmful or fatal if swallowed. Aspiration hazard. Avoid breathing vapors. Can cause nervous system depression. Vapor may be flammable. Keep away from heat and flame. Contents under pressure. Do not puncture or incinerate container.

Primary Route of Entry: Skin contact, inhalation

Acute/Potential Health Effects:

EYES: May cause mild to moderate eye irritation. Symptoms include stinging, tearing and redness.

SKIN: May cause mild skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, drying of skin and skin burns.

INHALATION: High vapor/aerosol concentrations (>1000 ppm) are irritating to the eyes and respiratory tract. May cause headaches, dizziness, anesthesia, drowsiness, unconsciousness, and other central nervous system effects, including death. May cause peripheral nervous system disorder and/or damage.

INGESTION: Harmful or fatal if swallowed. Aspiration hazard - this material can enter lungs during swallowing or vomiting and cause lung inflammation and damage.

Section 3: HAZARDS IDENTIFICATION - continued:

Chronic / Long Term Effects: Long term overexposure may cause adverse effects in the liver, respiratory system, kidney, reproductive system, and central nervous system.

Signs and Symptoms of Overexposure: Prolonged dermal contact may result in contact dermatitis. Exposure to high doses may cause depression of the central nervous system.

Target Organ Effects: liver, kidney

Reproductive/Developmental Information: No data.

Carcinogenic Information: This material is not listed as a carcinogen by IARC, NTP or OSHA.

Section 4: FIRST AID MEASURES

EYES: Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

SKIN: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Get medical attention immediately.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

INGESTION: Seek medical attention immediately. Do not induce vomiting. Give person two glasses of water if able to swallow. Contact poison control center or doctor for treatment advice. Do not leave individual unattended.

Section 5: FIRE FIGHTING MEASURES

Flash Point: No flash by standard methods
Extinguishing Media: Dry chemical, CO2 or foam is recommended.
Special Fire Fighting Instructions: CAUTION. Contents under pressure. Cool exposed containers with water spray to prevent bursting. SCBA should be used whenever chemical fires are present.

Section 6: ACCIDENTAL RELEASE MEASURES

Stop all leaks. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Eliminate all ignition sources. Disperse vapors with water spray. Prevent runoff from entering drains, sewers, streams or other bodies of water. Absorb spill with inert material. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for disposal.

Section 7: HANDLING AND STORAGE

Do not use or store near heat, sparks or open flame. Exposure to temperatures above 120 F may cause bursting. Do not puncture or incinerate container. Store in a cool, dry place. Do not get in eyes, on skin or on clothing. Intentional misuse by deliberately concentrating and inhaling may harmful or fatal. Keep out of reach of children.

Section 8: EXPOSURE CONTROLS and PERSONAL PROTECTION

Eye Protection: Wear safety glasses or goggles.

Skin Protection: To prevent repeated or prolonged contact, wear impervious gloves (made from Polyvinyl alcohol or neoprene).

Respiratory Protection: When respiratory protection is required use an organic vapor cartridge. A respiratory program that meets OSHA's 29 CFR 1910.34 & ANSI Z88.2 requirements must be followed.

Engineering Controls: Good general ventilation required.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Clear, colorless spray/mist with slight ethereal odor
pH Concentrate: n/a
Solubility in Water: Negligible
Vapor Pressure [mmHg]: 139 @ 77F
Evaporation Rate (Butyl Acetate=1): n/e
Vapor Density [Air=1]: 4.3
Specific Gravity [H20=1]: 1.33
Boiling Point: 160 F

Section 10: REACTIVITY

Stability: Stable
Hazardous Polymerization: Will not occur
Conditions to avoid: High temperature
Hazardous Decomposition Products: HF Acid, HCl, Phosgene
Incompatibility: Alkaline materials, Ferric Chloride, Metallic powders

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Section 11: TOXICOLOGICAL INFORMATION

Acute Toxicity: Oral route, LD50, rat, >5000 mg/kg; dermal route, LD50, rat, 2000 mg/kg.

Inhalation, LC50, 4 hrs, rat, 301 mg/ltr.

Section 12: ECOLOGICAL INFORMATION

No data.

Section 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Waste must be disposed of in accordance with federal, state and local environmental control regulations. See label for further instructions.

Section 14: TRANSPORTATION INFORMATION

D.O.T. Shipping Name / Class:

Consumer Commodity, ORM-D

(Domestic Ground Shipments)

Section 15: REGULATORY INFORMATION

U.S. Federal Regulations:

TSCA (Toxic Substances Control Act): The intentional ingredients of product are listed.

Title III Section 311/312 Hazardous Categories - 40 CFR 370.2:
ACUTE (X) Chronic (X) Fire ( ) Pressure (X) Reactive ( ) Not Applicable ( )

(1) Title III Section 302/304 Extremely Hazardous Substances - 40 CFR 355 Appendix A

(2) Title III Section 313 Toxic Chemicals - 40 CFR 372.65

If indicated under Section 2 of this MSDS, this product contains toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning & Community Right to Know Act of 1986. This information must be included in all MSDS that are copied and distributed for this material.

RCRA Status: Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. If this product becomes a hazardous waste it would be assigned RCRA Code(s)
None

State and Local Regulations: Certain states maintain their own ingredient lists which differ slightly from the Federal standards. If indicated under Section 2 of this MSDS, states listed below may have regulations on ingredients contained in this product. Check with your state for any additional regulations.
(3) California proposition 65 (Safe Drinking Water & Toxic Enforcement Act of 1986)
(4) Massachusetts (Hazardous Substance Disclosure by Employers)

Section 16: OTHER INFORMATION

This information was compiled from current manufacturer's MSDS's of the component parts of the product.

Disclaimer: The Manufacturer believes that the information contained in the Material Safety Data Sheet is accurate. The suggested procedures are based on experience as of the date of publication. They are not necessarily all inclusive nor fully adequate in every circumstance. Also, the suggestions should not be confused with, nor followed in violation of applicable laws, regulations, rules or insurance requirements.

MATERIAL SAFETY DATA SHEET

This MSDS complies with OSHA'S Hazard Communication Standard 29 CFR 1910.1200 and OSHA Form 174

IDENTITY AND MANUFACTURER'S INFORMATION

NFPA Rating: Health-2; Flammability-0; Reactivity-0; Special--	**HMIS Rating:** Health-2; Flammability-0; Reactivity-0; Personal Protection-B
Manufactured For: K-Chem, Inc. Address: P.O. Box 530632 Address: Birmingham, AL 35253-0632	**DOT Hazard Classification:** ORM-D **Identity** (trade name as used on label): **NUT BUSTER** **Part number: LU02A**
Phone: 205-592-0844	**MSDS Number:** A00390 Revision- 19
CHEMTEL D.O.T. EMERGENCY RESPONSE NUMBER: 800-255-3924 **NOTICE: JUDGEMENT BASED ON INDIRECT TEST DATA**	Date Prepared: 02/07/06 Prepared By: DL/IB Information Calls: (205)592-0844

SECTION 1 - MATERIAL IDENTIFICATION AND INFORMATION

COMPONENTS-CHEMICAL NAMES AND COMMON NAMES (Hazardous Components 1% or greater; Carcinogens 0.1% or greater)	CAS Number	SARA III LIST	OSHA PEL (ppm)	ACGIH TLV (ppm)	Carcinogen Ref. Source **
PERCHLOROETHYLENE	127-18-4	Yes	25	25	a,b
PETROLEUM DISTILLATE	8052-41-3	Yes	5mg\M3	5mg\M3	d
TRICHLOROETHYLENE	79-01-6	Yes	50	50	b
PETROLEUM DISTILLATE	64742-54-7	Yes	5mg\M3	5mg\M3	d
CALCIUM PETROLEUM SULFONATE	61789-86-4	No	NE	NE	d
WARNING: This product contains a chemical or chemicals known to the State of California to cause cancer.					

SECTION 2 - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: N/A	**Specific Gravity** (H2O=1): Concentrate Only = 1.21
Vapor Pressure: PSIG @ 70°F (Aerosols): 85-100	**Vapor Pressure** (Non-Aerosols)(mm Hg and Temperature): N/A
Vapor Density (Air = 1): N/E	**Evaporation Rate** (n-butyl acetate= 1): not determined
Solubility In Water: Insoluble	**Water Reactive:** No
Appearance and Odor: Light brown color with chlorinated solvent odor.	

SECTION 3 - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY as per USA FLAME PROJECTION TEST (aerosols) **NOT CATEGORIZED AS FLAMMABLE**	Auto Ignition Temperature N/E	Flammability Limits in Air by % in Volume: % LEL: N/E % UEL: N/E

FLASH POINT AND METHOD USED (non-aerosols): N/A
EXTINGUISHER MEDIA: Foam, dry chemical, carbon dioxide.
SPECIAL FIRE FIGHTING PROCEDURES: Self-contained breathing apparatus.

Unusual Fire & Explosion Hazards: Do not expose aerosols to temperatures above 130°F or the container may rupture.

SECTION 4 - REACTIVITY HAZARD DATA

STABILITY [X] STABLE [ ] UNSTABLE
HAZARDOUS POLYMERIZATION [ ] WILL [X] WILL NOT OCCUR

Incompatibility (Mat. to avoid): Reactive metals, aluminum, magnesium, strong oxidizing agents.
Conditions to Avoid: Open flame, welding arcs, heat.

Hazardous Decomposition Products: CO2, CO, HCl, small amounts of phosgene, chlorine and trace amounts of HF and oxides of sulfur.

SECTION 5 - HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY: [X] INHALATION [ ] INGESTION [X] SKIN ABSORPTION [ ] EYE [ ] NOT HAZARDOUS

ACUTE EFFECTS:

Inhalation: Excessive inhalation of vapors can be harmful and may cause headache, dizziness, asphyxia, anesthetic effects and possible unconsciousness.

Eye Contact: Irritation
Skin Contact: Irritation due to defatting of skin.

Ingestion: Possible chemical pneumonitis if aspirated into lungs. Nausea.

CHRONIC EFFECTS:(Effects due to excessive exposure to the raw materials of this mixture) May cause liver abnormalities, kidney, spleen, lung or brain damage, cardiac abnormalities. Perchloroethylene has been shown to increase the rate of spontaneously occurring malignant tumors in certain laboratory rats and mice.

Medical Conditions Generally Aggravated by Exposure: May aggravate existing eye, skin, or upper respiratory conditions.

EMERGENCY FIRST AID PROCEDURES

Eye Contact: Flush with water for 15 minutes. If irritated, seek medical attention.

Skin Contact: Wash with soap and water. If irritated, seek medical attention.

Inhalation: Remove to fresh air. Resuscitate if necessary. Get medical attention.

Ingestion: DO NOT INDUCE VOMITING. Drink two large glasses of water. Get immediate medical attention.

SECTION 6 - CONTROL AND PROTECTIVE MEASURES

Respiratory Protection (specify type): If vapor concentration exceeds TLV, use respirator approved by U.S. Bureau of Mines/ NIOSH for organic vapor.

Protective Gloves: Neoprene gloves recommended.
Eye Protection: Safety glasses recommended.

Ventilation Requirements: Adequate ventilation to keep vapor concentration below TLV.

Other Protective Clothing & Equipment: None

Hygienic Work Practices: Wash with soap and water before handling food. Remove contaminated clothing.

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING AND USE

Steps To Be Taken If Material is Spilled Or Released: Absorb with suitable medium. Incinerate or landfill according to local, state or Federal regulations. Allow to evaporate if small spill. DO NOT FLUSH TO SEWER.

Waste Disposal Methods: Aerosol cans when vented to atmospheric pressure through normal use, pose no disposal hazard.

Precautions To Be Taken In Handling & Storage: Do not puncture or incinerate containers. Do not store at temperatures above 130°F.

Other Precautions &/or Special Hazards: KEEP OUT OF REACH OF CHILDREN. Avoid food contamination. Avoid inhalation of vapors.

We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind.

** Chemical Listed as Carcinogen or Potential Carcinogen. [a] NTP [b] IARC Monograph [c] OSHA [d] Not Listed [e] Animal Data Only

THIS MSDS IS CURRENT AS OF November 23, 2009. The DATE PREPARED section is the original date assembled and remains current until a change is necessary. This is tracked internally at the manufacturer by these date codes and therefore must remain as the originating date.

MATERIAL SAFETY DATA SHEET
COMPLIES WITH OSHA'S HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200)

SECTION I · PRODUCT IDENTIFICATION

Product Name: **Nut Buster II Penetrant Lubricant Demoisturant Protectant**
Product Number: LU78A
Product Type: AEROSOL
Formula: Proprietary
Supplier's Name: K-Chem, Inc.
Supplier's Address: P.O. Box 530632, Birmingham, AL 35253-0632
DOT Ship Description: CONSUMER COMMODITY, ORM-D

Date Prepared: 10/30/07
Information Phone: (205) 592-0844
Emergency Phone: (800) 255-3924

HMIS Rating (Based on Aerosol Conc.):
0-Minimal 1-Slight 2-Moderate 3-Serious 4-Extreme

HEALTH:	1
FLAMMABILITY:	1
PHYSICAL HAZARD:	0
Personal Protection:	B

SECTION II · INGREDIENTS

CHEMICAL NAME	CAS #	%WT	313/Chem	Skin	Carcinogen	PEL	TWA/TLV
Mineral Oil	8042-47-5	40-50	NO	NO	NO	5mg/M3	5mg/M3
Octamethylcyclotetrasiloxane	556-67-2	01-05	NO	NO	NO	NE	10 ppm*
Decamethylcyclopentasiloxane	541-02-6	01-05	NO	NO	NO	NE	10 ppm*
Dipropylene Glycol Monomethyl Ether	34590-94-8	01-05	NO	YES	NO	100 ppm	100 ppm
Carbon Dioxide	124-38-9	01-05	NO	NO	NO	5000 ppm	5000 ppm

*Manufacturer's recommended TWA exposure limit.

SECTION III · PHYSICAL DATA

Aerosol Concentrate:
Boiling Point: 500°F
pH: N/A
Appearance/Odor: Brown liquid with solvent odor
Specific Gravity (H2O=1)@70°F: 0.84
Solubility In Water: Negligible
Vapor Density(Air=1): >1

Total Contents:
Total VOC %: 3.34%
Vapor Pressure (can; psig @72°F): 68

SECTION IV · FIRE AND EXPLOSION DATA

Flash Point (Conc.): >200°F (T.O.C.)
Flammability (as per CSMA Flame Projection Test): Non-Flammable Spray
Extinguishing Media: Foam, CO2, Dry Media
Special Fire Fighting Procedures: Wear self-contained breathing apparatus and protective clothing. Cool fire exposed containers to prevent rupturing.
Unusual Fire and Explosion Hazards: Exposure to temperature above 120° F may cause bursting.

SECTION V · REACTIVITY DATA

Stability: Material Stable.
Hazardous Polymerization: Will not Occur.
Incompatibility: Avoid contact with strong oxidizing agents.
Hazardous Decomposition Products: Carbon Dioxide, Carbon Monoxide.

SECTION VI · STORAGE AND HANDLING

KEEP OUT OF REACH OF CHILDREN.
NFPA Code 30B Rating: Level 1 Aerosol.
For Industrial and Institutional use only.
Store in a cool, dry area away from heat or open flame.
Do not store at temperatures above 120° F.

SECTION VII · HEALTH AND FIRST AID

PRIMARY ROUTES OF ENTRY & EFFECTS OF OVER EXPOSURE:
Eyes: May cause slight irritation but does not injure eye tissue.
Skin: Frequent or prolonged contact may cause irritation.
Inhalation: Inhalation of mist can cause irritation of nasal and respiratory passages. Abusive or excessive inhalation may cause irritation to the upper respiratory tract, dizziness, nausea and other central nervous system effects. Prolonged exposure may affect the liver.
Ingestion: Can cause gastrointestinal irritation, nausea, vomiting and diarrhea. Aspiration of material into the lungs can cause chemical pneumonitis.
FIRST AID PROCEDURES:
Eyes: Flush with large amounts of cool running water for at least 15 minutes while holding upper and lower lids open. If irritation persists seek medical attention.
Skin: Wash with soap and water. If irritation persists seek medical attention.
Inhalation: Remove to fresh air. Seek medical attention immediately. If breathing stops give artificial respiration.
Ingestion: Do not induce vomiting. Seek medical attention immediately.

SECTION VIII · SPECIAL PROTECTION DATA

Respiratory Protection: None needed for proper use in accordance with label directions.
Ventilation: Provide local exhaust to keep concentration of Section II Ingredients below acceptable limits.
Protective Gloves: Use chemical resistant gloves if hand contact will be made.
Eye Protection: Always wear safety glasses or chemical proof goggles when working with chemicals.

SECTION IX · SPILL OR LEAK PROTECTION

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK: Allow propellant to evaporate. Maintain local exhaust and adequate ventilation. No smoking. Keep sparks, heat sources and open flame far away from spill or leak. Cover with absorbent material and sweep up. Wash area to prevent slipping. Dispose of soaked absorbent material in accordance with Federal, State and local laws.
WASTE DISPOSAL METHOD: Aerosol cans, when emptied and depressurized through normal use, pose no disposal hazard and should be recycled. Consult Federal, State and local authorities for approved procedures.

N/A= NOT APPLICABLE · N/E=NOT ESTABLISHED · N/D=NOT DETERMINED · <=LESS THAN · >=MORE THAN

Material Safety Data Sheet

Last Rev. Date: 12-05-2006

Trade Name: Nitric Acid

Supplier: Harcros Chemicals, Inc.
5200 Speaker Road
Kansas city, KS 66106-1095

Suppliers Telephone Number: 913-321-3131
Transportation Emergency Telephone Number: 1-800-424-9300
MSDS No. 000944

Product Names: Nitric Acid; Nitric Acid 38 BE; Nitric Acid 40BE; Nitric Acid 41 BE; Nitric Acid 42 BE
Nitric Acid Reagent Grade
Nitric Acid 10%, 15%, 40%
Nitric Acid Solution

Chemical Name and Synonyms	C.A.S. No.	Chemical Formula	WT%	TLV	PEL
			Hazardous		
Nitric Acid	7697-37-2	HNO_3	10-70	5mg/M^3 4 ppm STEL	2 ppm TWA
			Non-hazardous		
Water	7732-18-5	H_2O	48-30		

HEALTH HAZARDS

Ingestion: Ingestion causes discoloration of teeth, mouth and throat; stomachache, nausea, vomiting of blood, anuria, albuminuria and casts, circulatory collapse.
Inhalation: Inhalation causes dental erosion, cough, sneeze, chest pain, bronchitis, bronchopneumonia. May cause delayed pulmonary edema, which may be severe and sometimes fatal.
Eye Contact: Vapors are highly irritating to eyes. Acid can destroy eyes.
Skin Absorption: It destroys tissues, causes burns, severe pain and staining of skin yellow to brown.
Skin Contact: On contact with skin, it can destroy tissues, burn skin and may stain skin, sometimes a yellow color.
Effects of Overdose: May cause acute or chronic pulmonary problems. Causes burning and corrosion of mouth, throat, esophagus, stomach,stomachache, nausea, shock, circulatory collapse, and death.

FIRST AID

Ingestion: GET PROMPT MEDICAL ATTENTION. If patient is conscious, give large quantities of water. DO NOT INDUCE VOMITING.
Inhalation: Remove person from exposure to fresh air. Support respiration; give artificial resuscitation and call a doctor. Observe for 24 hours as symptoms may be delayed.
Eyes: Flush thoroughly with fresh running water for 15-20 minutes and call a doctor.
Skin: Wash thoroughly with fresh running water for 15 minutes and call a physician. Remove all contaminated clothing while flushing with water. Do not reuse contaminated clothing until laundered.

FIRE AND EXPLOSION HAZARDS

Extinguishing Media: Use water spray and suitable media to extinguish source of fire.
Special Fire Fighting Procedures: Do not apply water directly to acid. Keep containers cool. Full protective clothing including self-contained breathing apparatus, chemical gloves, and bands around legs, arms and waist should be provided. No skin surface should be exposed.
Unusual Fire and Explosion Hazards: Reacts explosively with metallic powders, carbides, hydrogen sulfide, and turpentine. Spontaneous ignition with organic materials. Reacts violently with acetic acid, acetic anhydride, (acetone + acetic acid), (acetone + H_2SO_4), acetylene, acrolein, acronitrile, allyl alcohol, allyl chloride, 2-amino ethanol, NH_3, NH_4OH, aniline, anion exchange resins, (dichromate + anion exchange resins), Sb, AsH_3, Bl, B, boron decahydride, BP, BrF_5, n-butyraldehyde, Ca hypophosphite, C, Cs_2C_2, 4-chloro-2-nitroaniline, ClF_3, chlorosulfonic acid, cresol, cumene, Cu_3N_2, CuN_3, cyanides, cyclic ketones, cyclohexanol, cyclohenanone, diborane, 2,6-di-tert-butyl phenol, diisopropyl ether, epichlorohydrin, ethanol, m-ethylaniline, ethylene diamine, ethylene imine, 5-ethyl-2-methyl pyridine, 5-ethyl-2-picoline, $C_2H_5PH_2$, FeO, F_2, furfuryl alcohol, Ge, glyoxal, hydrazine, HN_3, HI, H_2O_2, H_2Se, H_2S, H_2Te, (indane + H_2SO_4), isoprene, (ketones + H_2O_2), (lactic acid + HF), Li, Li_6Si_2, Mg, Mg_3P_2, Mg-Ti alloy, Mn, mesitylene, mesityl oxide, 2-methyl-5-ethyl pyridine, 4-methyl-cyclohexanone, NdP, nitrobenzene, oleum, organic matter, PH_3, PH_4I, P, P_4I_3, PCl_3, phthalic acid, phthalic anhydride, HK_2PO_2, beta-propiolactone, prophosphide, (Ag + ethanol), Na, NaN_3, NaOH, SbH_3, sulfamic acid, (H_2SO_4 + glycerides), terpenes, B_4H_{10}, thiocyanates, thiophene e, Ti, Ti alloy, Ti-Mg alloy, (H_2SO_4 + $C_6H_5CH_3$), toluidine, triazine, uns-dimethyl hydrazine, U, U-Nd alloy, U-Nd-Zr alloy, vinylacetate, vinylidene chloride, Zn, Zr-U alloys.

SPILL AND LEAK PROCEDURES

Environmental Precautions: Toxic to aquatic life. Do not contaminate any waterway or any body of water by direct application, cleaning of equipment or disposal of nitric acid.

Steps to be taken in case material is released or spilled:
Wear full protective clothing and self-contained breathing apparatus. Dike area to contain spill. Reclaim or neutralize with an equal mixture of soda ash and slaked lime. Wash neutralized acid into impounded areas. Advise environmental authorities if substance has entered a sewer or water course, or has contaminated soil or vegetation.

Precautions to be taken in handling and storing:
Protect against physical damage. Separate from metallic powders, carbides, reducing agents, combustible materials, organic acids, and all other readily oxidizable materials. Keep out of direct sunlight and poorly ventilated areas. Have adequate first aid water available.

Trade Name: Nitric Acid
Registration No: None

Harcros Chemicals, Inc.
MSDS No. 000944

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation Protection: Open ventilation or mechanical to control fumes below TLV.
Respiratory Protection: Acid vapor canister or air-supplied or self-contained breathing apparatus. Some self-contained breathing apparatus may contain oxidizable materials, such as activated carbon and therefore should not be used for protection against nitric acid. Consult with the respirator manufacturers to determine the appropriate type of equipment for a given application.
Protective Clothing: Full protective clothing. Should have chemical suit, chemical boots and chemical gloves available to use. If it is determined that the situation allows use of regular clothing, wear a chemical apron.
Suit Material Performance: (suggested material by E.P.A.--user should determine by specific use)

Butyl	poor	Chlorobutyl	good	Butyl/Neoprene	good
Neoprene	good	CPE	good	Nitrile	poor

Eye Protection: Chemical splash-proof goggles and/or face shield.
Other: Eye wash fountain and safety shower in area.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point:	187°F	**Solubility in Water:**	Infinitely
Specific Gravity:	1.32 - 1.43 @ 60°F	**% Volatiles (by volume):**	Not available
Flashpoint:	Non-flammable	**Vapor Pressure, mm Hg:**	Not applicable
Appearance:	Colorless to light yellowish-brown liquid. Acrid odor.	**Melting Point:**	-42°
Reaction with Water:	Will produce heat and hazardous and corrosive fumes.	**pH:**	Less than 1.0
Extinguishing Media:	Water or media suitable to extinguish source of fire.		

SECTION 10. STABILITY AND REACTIVITY

Stability (Normal Conditions): Stable
Conditions to Avoid: Avoid direct sunlight and poorly ventilated areas.
Incompatibility (Material to Avoid): Aromatic hydrocarbons, alcohols, glycerol, strong bases, metallic powders, carbides, turpentine, and combustible organics and oxidizers. Powerful oxidizing agent, incompatible with many other materials. Check references such as Sax Hazardous Chemicals for full list.
Hazardous Decomposition Products: In oxidation of most organic materials, concentrated nitric acid will produce dense clouds of red or brown oxides of nitrogen.
Hazardous Polymerization: Will not occur

SECTION 11. TOXICOLOGY INFORMATION

Acute Inhalation Toxicity: LC_{50} (rat) is 65-67 mg/m^3; highly toxic by inhalation. (TFI Product Testing Results)
Acute Aquatic Toxicity: Algae 6.30 mg/L. Moderately toxic to aquatic organisms. (TFI Product Testing Results)

SECTION 12. ECOLOGICAL INFORMATION

None listed.

SECTION 13 DISPOSAL CONSIDERATIONS

Waste Disposal Procedures: Comply with local, state and federal regulations on disposal of "slurry." Never pour water into acid, always pour acid into water. Always obey hazard warnings and handle empty containers as if they were full.

SECTION 14 TRANSPORT INFORMATION

Shipping name: RQ Nitric Acid (other than red fuming, with not more than 70% nitric acid), 8, UN2031, P.G. II
C.A.S. Number: 7697-37-2

Hazard Class:	8	**Packaging Class:**	II
Reportable Quantity (RQ):	1000 lbs.	**D.O.T. Number:**	UN2031
Labels Required:	Corrosive	**Haz Waste No:**	D002
Placard:	Corrosive	**EPA Regist No:**	None

Refer to 49 CFR 172.101 Hazardous Materials Table for further provisions, packaging authorizations and quantity limitations.

SECTION 15 REGULATORY INFORMATION

Carcinogenicity: by IARC?: Yes ( ) No (X) by NTP: Yes ( ) No (X)
This product contains nitric acid (52-75%), CAS No. 7697-37-2, which is subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

SECTION 16 OTHER INFORMATION

Flash Point (Test Method):			Not applicable		**Flammable Limits**	**LOWER**	**UPPER**
Autoignition Temperature:	Not applicable				(% BY VOLUME)	N/A	N/A
Hazard Rating (N.F.P.A.):	**Health:** 3	**Fire:** 0	**Reactivity:** 0	**Specific:** Oxy			

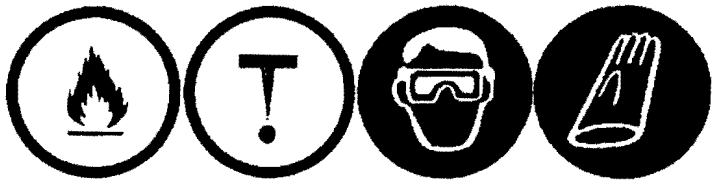
MSDS Version Number: 6 (revisions to Section 11)

ISOPROPYL ALCOHOL 99%

MATERIAL SAFETY DATA SHEET

In case of Emergency call CHEMTREC 1-800-424-9300

ISOPROPYL ALCOHOL 99%



MSDS No.
AL01

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

SUPPLIER.....K-Chem, Inc.
PO Box 530632
Birmingham, AL 35253
EMERGENCY PHONE NUMBER(S)...CHEMTREC DAY OR NIGHT 1-800-424-9300
REVISION DATE.....1998/12/18

REVISION.....SECTION 11 - LD50 ORAL
SECTION 11 - LD50 DERMAL
SECTION 11 - LC50 INHALATION
SECTION 15 - EINECS INVENTORY
SECTION 2 - TLV
TRADE NAMES/SYNONYMS:.....ISOPROPANOL; IPA 99; DIMETHYLCARBINOL; ISOHOL; PETROHOL; LUTOSOL; PROPAN-2-OL; 2-PROPANOL; sec-PROPYL ALCOHOL; UN1219.
CHEMICAL FAMILY.....ALIPHATIC ALCOHOL
PRODUCT USE.....MANUFACTURE OF ACETONE AND ITS DERIVATIVES; MANUFACTURE OF GLYCEROL AND ISOPROPYL ACETATE; SOLVENT; DEICING AGENT FOR LIQUIFIED FUELS; DEHYDRATING AGENT; PRESERVATIVE; DENATURANT.
CHEMICAL FORMULA.....(CH3)2-CH2-O
HAZARD RATING
FIRE.....3
HEALTH.....2
REACTIVITY.....0

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT	%CONC	CAS	ACGIH-TLV	OSHA-PEL
ISOPROPYL ALCOHOL	99.0	67-63-0	400 PPM TWA 500 PPM STEL * 1998 ACGIH NOTICE OF INTENDED CHANGE 200 PPM TWA 400 PPM STEL	400 PPM TWA 500 PPM STEL

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW.....EXTREMELY FLAMMABLE. INHALATION AND INGESTION HAZARD. SEVERE EYE IRRITANT.
KEEP AWAY FROM ALL SOURCES OF HEAT, OPEN FLAMES AND OTHER IGNITION SOURCES. AVOID ALL SKIN AND EYE CONTACT. AVOID BREATHING VAPOURS AND MISTS. USE ONLY WITH ADEQUATE VENTILATION. BOND AND GROUND ALL CONTAINERS. KEEP AWAY FROM INCOMPATIBLE MATERIALS. WASH THOROUGHLY AFTER HANDLING.

POTENTIAL HEALTH EFFECTS:
INGESTION.....SERIOUS ILLNESS MAY OCCUR FROM AS LITTLE AS 10 ml INGESTED. MAY BE FATAL IF INGESTED IN QUANTITIES GREATER THAN 100 ml.
SKIN CONTACT.....IRRITANT, MILDLY TOXIC.
MAY CAUSE IRRITATION, REDNESS AND DEFATTING.
INHALATION.....NARCOTIC.
MAY CAUSE COUGHING, DIZZINESS, SHORTNESS OF BREATH AND INTOXICATION. INTENTIONAL INHALATION OF VAPOURS MAY CAUSE PERMANENT DAMAGE TO THE CENTRAL NERVOUS SYSTEM.
EYE CONTACT.....SEVERE IRRITANT.
MAY CAUSE CORNEAL BURNS AND EYE DAMAGE.

MEDICAL CONDITIONS

AGGRAVATED	PERSONS WITH CHRONIC RESPIRATORY, SKIN OR EYE DISEASES.
SUBCHRONIC (TARGET ORGAN) EFFECTS	CENTRAL NERVOUS SYSTEM DEPRESSANT POISONING MAY ALSO AFFECT THE LIVER AND KIDNEYS
CHRONIC EFFECTS	REPEATED OR PROLONGED SKIN CONTACT MAY CAUSE DERMATITIS. PROLONGED OR REPEATED EYE CONTACT MAY CAUSE EYE DAMAGE. PROLONGED OR INTENTIONAL INHALATION OF VAPOURS MAY CAUSE SERIOUS HARM.
CARCINOGENICITY	
NTP	NO
IARC	NO
OSHA	NO
OTHER TOXICOLOGICAL DATA	NARCOTIC
PRINCIPAL ROUTES OF ENTRY	EYE CONTACT SKIN CONTACT INHALATION INGESTION SKIN ABSORPTION

SECTION 4: FIRST AID MEASURES

EYE CONTACT	WASH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER OR NORMAL SALINE, OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (AT LEAST 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY. IF PAIN, BLINKING, TEARS OR REDNESS CONTINUES THE VICTIM SHOULD CONSULT AN OPTHAMOLOGIST.
SKIN CONTACT	REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO EVIDENCE OF CHEMICAL REMAINS (AT LEAST 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.
INHALATION	REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. PERFORM ARTIFICIAL RESPIRATION IF NECESSARY. KEEP PERSON WARM AND AT REST. TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GET MEDICAL ATTENTION IMMEDIATELY.
INGESTION	ASPIRATION HAZARD ! OBTAIN IMMEDIATE MEDICAL ASSISTANCE - DO NOT INDUCE VOMITING. IF VOMITING OCCURS SPONTANEOUSLY, KEEP HEAD BELOW HIPS TO AVOID ASPIRATION.
NOTE TO PHYSICIAN	TREAT SYMPTOMATICALLY

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT	53°F (12°C)
METHOD	CLOSED CUP
IGNITION TEMPERATURE	852°F (455°C)
UPPER FLAMMABLE LIMIT	12.0
LOWER FLAMMABILITY LIMIT	2.5
SENSITIVITY TO MECHANICAL IMPACT	NO
SENSITIVITY TO STATIC DISCHARGE	YES

EXTINGUISHING MEDIA.....FOR SMALL FIRES:
DRY CHEMICAL, CARBON DIOXIDE, WATER-SPRAY OR ALCOHOL RESISTANT FOAM
FOR LARGE FIRES:
WATER-SPRAY, FOG OR ALCOHOL RESISTANT FOAM

SPECIAL FIREFIGHTING PROCEDURES.....VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL A CONSIDERABLE DISTANCE TO A SOURCE OF IGNITION AND FLASH BACK
VAPOR-AIR MIXTURES ARE EXPLOSIVE
CONSIDER EVACUATION DOWNWIND
WEAR APPROPRIATE PROTECTION EQUIPMENT

IF POSSIBLE, MOVE CONTAINERS FROM FIRE AREA, APPLY COOLING WATER TO SIDES OF CONTAINERS ENSURING THAT YOU STAY AWAY FROM THE ENDS OF TANKS (BULK STORAGE, RAIL CARS, TANK TRUCKS). EVACUATE IMMEDIATELY IF TANKS ARE DISCOLORED OR IF RISING SOUND IS EMITTED FROM TANKS, MINIMUM EVACUATION RADIUS SHOULD BE ½ MILE.

FOR MASSIVE FIRE USE UNMANNED HOSE HOLDERS OR MONITOR NOZZLES.

WATER MAY BE INEFFECTIVE IF FLOW OF FLAMMABLE LIQUID IS NOT STOPPED.

FLAMMABILITY CLASS (OSHA)...IB

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACTION TO BE TAKEN FOR SPILLS OR RELEASES.....SHUT OFF SOURCE, IF WITHOUT RISK.
EVACUATE NON-ESSENTIAL PERSONNEL.
ELIMINATE ALL SOURCES OF IGNITION.
DIKE AREA TO PREVENT SPREADING.
PREVENT RUNOFF INTO SEWERS, WATERWAYS, DITCHES, OR STREAMS.
SHOVEL OR PUMP TO A SALVAGE TANK USING NON-SPARKING EQUIPMENT.
ABSORB RESIDUAL MATERIAL WITH AN INERT ABSORBENT.
SHOVEL ABSORBED RESIDUE INTO PROPERLY IDENTIFIED DRUMS FOR LATER DISPOSAL.
CONTACT LOCAL OFFICIALS AS REQUIRED.

SECTION 7: HANDLING AND STORAGE

HANDLING PROCEDURES.....THIS PRODUCT MUST BE HANDLED BY PROPERLY TRAINED PERSONNEL.
USE PROPER HANDLING EQUIPMENT FOR SPECIFIC HANDLING OPERATION.
WHEN TRANSPERRING MATERIAL FROM ONE CONTAINER TO ANOTHER ENSURE BONDING AND GROUNDING TO PREVENT STATIC DISCHARGE.
DO NOT BREATHE VAPOURS.
AVOID ALL SKIN AND EYE CONTACT BY WEARING PROPER PROTECTIVE EQUIPMENT.

	HANDLE AWAY FROM ALL SOURCES OF IGNITION AND INCOMPATIBLE MATERIALS.
STORAGE PROCEDURES.....	STORE AWAY FROM ALL SOURCES OF IGNITION. STORE AWAY FROM ALL INCOMPATIBLE MATERIALS. ENSURE THAT THE STORAGE AREA IS ADEQUATELY VENTILATED AND EQUIPPED WITH PROPER EMERGENCY RESPONSE EQUIPMENT IN THE EVENT OF LEAK, SPILL, OR FIRE. OBSERVE ALL FEDERAL, STATE, AND LOCAL REGULATIONS WHEN STORING THIS PRODUCT.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS.....	ENSURE THAT VENTILATION SYSTEM USED IS DESIGNED TO MEET PUBLISHED EXPOSURE LIMITS. PROPER HANDLING SYSTEMS SHOULD BE DESIGNED FOR SPECIFIC HANDLING OPERATION.
RESPIRATORY PROTECTION.....	THE SPECIFIC RESPIRATOR SELECTED MUST BE BASED ON CONTAMINATION LEVELS FOUND IN THE WORK PLACE, MUST NOT EXCEED THE WORKING LIMITS OF THE RESPIRATOR AND BE JOINTLY APPROVED BY THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH AND THE MINE SAFETY AND HEALTH ADMINISTRATION (NIOSH-MSHA).
PROTECTIVE CLOTHES.....	IMPERVIOUS GLOVES AND CLOTHING TO PREVENT SKIN CONTACT.
EYE AND FACE PROTECTION.....	SAFETY GOGGLES AND A FACE SHIELD
OTHER PROTECTIVE EQUIPMENT..	WHERE THERE IS ANY POSSIBILITY THAT AN EMPLOYEE'S EYES MAY BE EXPOSED TO THIS SUBSTANCE, THE EMPLOYER SHOULD PROVIDE AN EYE WASH FOUNTAIN WITHIN THE IMMEDIATE WORK AREA FOR EMERGENCY USE. WHERE THERE IS ANY POSSIBILITY THAT AN EMPLOYEE'S SKIN MAY BE EXPOSED TO THIS SUBSTANCE, THE EMPLOYER SHOULD PROVIDE A QUICK DRENCH SHOWER WITHIN THE IMMEDIATE WORK AREA FOR EMERGENCY USE.
VENTILATION.....	PROVIDE LOCAL EXHAUST VENTILATION TO MEET PUBLISHED EXPOSURE LIMITS. VENTILATION EQUIPMENT SHOULD BE EXPLOSION-PROOF IF EXPLOSIVE CONCENTRATIONS OF DUST, VAPOR OR FUME ARE PRESENT.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

VAPOR DENSITY (AIR=1).....	2.1
FREEZING/MELTING POINT.....	-128°F (-89°C)
PHYSICAL STATE.....	LIQUID
ODOR.....	ALCOHOL ODOR
COLOR.....	CLEAR, COLORLESS
ODOR THRESHOLD (PPM).....	~200 ppm
VOLATILES % VOLUME.....	100.0
EVAPORATION RATE (BUTYL ACETATE=1.0).....	NO DATA
SPECIFIC GRAVITY (WATER=1.0).....	0.78
MOLECULAR WEIGHT.....	60.11

ACID/ALKALINITY (MEQ/G)	NO DATA
PH	NO DATA
VOC (EPA METHOD 24)	780 g/L
SOLUBILITY IN ORGANIC SOLVENTS	ETHER CHLOROFORM MOST ORGANIC SOLVENTS
BOILING POINT	180°F (82°C)
VAPOR PRESSURE MM/HG (20°C)	3.3
SOLUBILITY IN WATER (20°C)	100.0 %

SECTION 10: STABILITY AND REACTIVITY

STABILITY	STABLE
HAZARDOUS POLYMERIZATION	WILL NOT OCCUR
HAZARDOUS THERMAL DECOMPOSITION/COMBUSION PRODUCTS	OXIDES OF CARBON
INCOMPATIBILITY (MATERIALS TO AVOID)	STRONG OXIDIZERS; ALUMINIUM METAL; NITROFORM; OLEUM.
CONDITIONS TO AVOID	EXPOSURE TO HEAT, FLAME OR IGNITION SOURCES. CONTACT WITH INCOMPATIBLE SUBSTANCES.

SECTION 11: TOXICOLOGICAL INFORMATION

LD50 ORAL	ISOPROPYL ALCOHOL 99 % - RTECS 97/12 NT8050000 5045 mg/kg RAT 3600 mg/kg MOUSE 6410 mg/kg RABBIT
LD50 DERMAL	ISOPROPYL ALCOHOL 99% - RTECS 97/12 NT8050000 12800 mg/kg RABBIT
LC50 INHALATION	ISOPROPYL ALCOHOL 99% - RTECS 97/12 NT8050000 16000 ppm 8 HOURS RAT
OTHER	EXPERIMENTAL TERATOGENIC AND REPRODUCTIVE EFFECTS. MUTATION DATA REPORTED. QUESTIONABLE CARCINOGEN.
AMES TEST RESULTS	NO DATA AVAILABLE COVERING AMES TEST RESULTS ISOPROPYL ALCOHOL 99% - RTECS 95/01 NT8050000 SKIN: RABBIT 500 mg MILD EYE: SEVERE - 100 mg RABBIT; MODERATE - 10 mg RABBIT; MODERATE 100 mg/24 HOURS RABBIT

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION	NO DATA AT THIS TIME
CHEMICAL FATE INFORMATION	NO DATA AT THIS TIME

SECTION 13: DISPOSAL CONSIDERATION

DISPOSAL METHOD.....IN ACCORDANCE WITH FEDERAL, STATE, LOCAL REGULATIONS
REPORTABLE QUANTITY.....NOT APPLICABLE

SECTION 14: TRANSPORT INFORMATION

DOT SHIPPING NAME.....ISOPROPANOL
DOT HAZARD CLASS.....3 - FLAMMABLE LIQUID
PACKAGING GROUP II
DOT LABELS.....FLAMMABLE LIQUID
UN NUMBER.....UN1219
PLACARDS.....IN ACCORDANCE WITH DOT 49CFR173 AND 49CFR243
IATA.....CLASS 3
IMO/IMDG.....3.2
EUROPEAN CLASS.....FLAMMABLE LIQUID
TRANSPORT EMERGENCY
PROCEDURES.....CONTACT CHEMTREC 1-800-424-9300

OTHER.....NOT APPLICABLE

SECTION 15: REGULATORY INFORMATION

SARA SECTION 302.....NO
SARA SECTION 304.....NO
SARA HAZARD CATAGORIES
SECTIONS 311/312
ACUTE HAZARD.....YES
CHRONIC HAZARDS.....NO
FIRE HAZARDS.....YES
REACTIVITY HAZARDS.....NO
SUDDEN RELEASE HAZARDS...NO
SARA (313) CHEMICALS.....NO
EPA TSCA INVENTORY.....APPEARS
CERCLA SECTION 103.....NO
CANADIAN WHMIS
CLASSIFICATION.....B2, D2B
OSHA PROCESS SAFETY.....NO
CANADIAN DOMESTIC
SUBSTANCES LIST (DSL).....APPEARS
CALIFORNIA PROPOSITION 65...NO
EINECS INVENTORY.....200-661-7

SECTION 16: ADDITIONAL INFORMATION

DISCLAIMER.....THIS MATERIAL SAFETY DATA SHEET WAS PRODUCED FROM RELIABLE SOURCES. HOWEVER, IT IS PROVIDED WITHOUT REPRESENTATION OR WARRANTY EXPRESSED OR IMPLIED REGARDING ACCURACY OR CORRECTNESS. CONDITIONS AND METHODS OF USE ARE BEYOND THE CONTROL AND KNOWLEDGE OF K-CHEM, INC. K-CHEM, INC. DOES NOT ASSUME ANY RESPONSIBILITY AND EXPRESSLY DISCLAIMS

LIABILITY FOR INJURY, LOSS, DAMAGE OR EXPENSES ARISING FROM THE USE OF THIS PRODUCT.

ABBREVIATIONS USED.....ABBREVIATIONS USED THROUGHOUT THIS MSDS ARE:
ACGIH = AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS
TWA = TIME WEIGHTED AVERAGE (EXPOSURE VALUES)
STEL = SHORT TERM EXPOSURE LIMITS
OSHA = OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PEL = PERMITTED EXPOSURE LIMITS
ppm = PARTS PER MILLION
mg = MILLIGRAMS
NIOSH = NATIONAL INSTITUTE FOR OCCUPATIONAL HEALTH AND SAFETY
MSHA = MINE SAFETY AND HEALTH ADMINISTRATION
lb = POUNDS
m3 = PER METRE CUBED
NTP = NATIONAL TOXICOLOGICAL PROGRAM
g = GRAMS
ml = MILLILITRE
RTECS = REGISTRY OF TOXICS EFFECTS OF CHEMICAL SUBSTANCES (NIOSH)

SECTION 17: LABEL INFORMATION

FOR FURTHER INFORMATION.....SEE THE MATERIAL SAFETY DATA SHEET
SUPPLIER.....K-CHEM, INC
3908 3rd Avenue South
Birmingham, AL 35253
TEL: (205) 592-0844 FAX:(205)592-8106

MATERIAL SAFETY DATA SHEET

This MSDS complies with OSHA'S Hazard Communication Standard 29 CFR 1910.1200 and OSHA Form 174

IDENTITY AND MANUFACTURER'S INFORMATION

NFPA Rating: Health-2; Flammability-0; Reactivity-0; Special--	**HMIS Rating:** Health-2; Flammability-0; Reactivity-0; Personal Protection-B
Manufactured For: K-Chem, Inc. Address: P.O. Box 530632 Address: Birmingham, AL 35253-0632	**DOT Hazard Classification:** ORM-D **Identity** (trade name as used on label): **KONTACT KLEANER III** **Part number: SO83A**
Phone: 205-592-0844	**MSDS Number:** A00363 Revision- 3
CHEMTEL D.O.T. EMERGENCY RESPONSE NUMBER: 800-255-3924 **NOTICE: JUDGEMENT BASED ON INDIRECT TEST DATA**	Date Prepared: 01/16/07 Prepared By: TR/IB Information Calls: (205)592-0844

SECTION 1 - MATERIAL IDENTIFICATION AND INFORMATION

COMPONENTS-CHEMICAL NAMES AND COMMON NAMES (Hazardous Components 1% or greater; Carcinogens 0.1% or greater)	CAS Number	SARA III LIST	OSHA PEL (ppm)	ACGIH TLV (ppm)	Carcinogen Ref. Source **
1,1,1,2-TETRAFLUOROETHANE	811-97-2	No	NE	NE	d
1-BROMOPROPANE	106-94-5	No	*Not est.	Not est.	d
3,3-DICHLORO-1,1,1,2,2-PENTAFLUOROPROPANE	422-56-0	No	NE	NE	d
1,3-DICHLORO-1,1,2,2,3-PENTAFLUOROPROPANE	507-55-1	No	NE	NE	d
***Manufacturer's suggested Exposure Limit = 25 ppm over 8 hours.**					
WARNING: This product contains a chemical or chemicals known to the State of California to cause birth defects or other reproductive harm.					

SECTION 2 - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: N/A	**Specific Gravity** (H2O=1): Concentrate Only = 1.33
Vapor Pressure: PSIG @ 70°F (Aerosols): 50-60	**Vapor Pressure** (Non-Aerosols)(mm Hg and Temperature): N/A
Vapor Density (Air = 1): greater than 1	**Evaporation Rate** (water = 1): > 1.0
Solubility in Water: Negligible	**Water Reactive:** No
Appearance and Odor: Sprays as a clear, forceful, stream with solvent odor.	

SECTION 3 - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY as per USA FLAME PROJECTION TEST (aerosols): extinquishes flame: NOT categorized as FLAMMABLE	Auto Ignition Temperature N/E	Flammability Limits in Air by % in Volume: % LEL: N/E % UEL: N/E
FLASH POINT AND METHOD USED (non-aerosols): N/A **SPECIAL FIRE FIGHTING PROCEDURES:** Self-contained breathing apparatus.	**EXTINGUISHER MEDIA:** Foam, dry chemical, carbon dioxide.	
Unusual Fire & Explosion Hazards: Do not expose aerosols to temperatures above 130°F or the container may rupture.		

SECTION 4 - REACTIVITY HAZARD DATA

STABILITY [X] STABLE [ ] UNSTABLE	**HAZARDOUS POLYMERIZATION** [ ] WILL [X] WILL NOT OCCUR
Incompatibility (Mat. to avoid): Strong oxidizing agents, strong bases (sodium hydroxide, potassium hydroxide), alkaline earth metals, finely powdered metals such as aluminum, magnesium or zinc.	**Conditions to Avoid:** Open flame, glowing metal surfaces, welding arcs, heat, sparks.
Hazardous Decomposition Products: Carbon dioxide, carbon monoxide, hydrofluoric acid, hydrochloric acid, chlorine, bromine and possible carbonyl halides.	

SECTION 5 - HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY: [X] INHALATION [ ] INGESTION [X] SKIN ABSORPTION [X] EYE [ ] NOT HAZARDOUS

ACUTE EFFECTS

Inhalation: Excessive inhalation of vapors can cause central nervous system depression, dizziness, weakness, confusion, incoordination or unconsciousness. Irregular heart beat with a strange sensation in the chest, "heart thumping", apprehension, lightheadedness, feeling of fainting, dizziness, weakness may progress to loss of consciousness and death. Suffocation if air is displaced by vapors.

Eye Contact: Irritation with tearing, pain or blurred vision.	**Skin Contact:** Slight irritation with itching, redness or swelling. Prolonged exposure and direct spraying of skin may result in defatting of the skin and/or frostbite..

Ingestion: Aspiration which may cause "chemical pneumonia". Symptoms include coughing, gasping, choking, shortness of breath, bluish discoloration of skin, rapid breathing and increased heart rate.

CHRONIC EFFECTS: (Effects due to excessive exposure to the raw materials of this mixture) Excessive inhalation may result in central nervous system effects.

Medical Conditions Generally Aggravated by Exposure: May aggravate existing eye, skin, or upper respiratory conditions.

EMERGENCY FIRST AID PROCEDURES

Eye Contact: Flush with water for 15 minutes. If irritated, seek medical attention.

Skin Contact: Wash with soap and water. If irritated, seek medical attention.

Inhalation: Remove to fresh air. Resuscitate if necessary. Get medical attention.

Ingestion: DO NOT INDUCE VOMITING. Drink two large glasses of water. Get immediate medical attention.

SECTION 6 - CONTROL AND PROTECTIVE MEASURES

Respiratory Protection (specify type): If vapor concentration exceeds TLV, use respirator approved by NIOSH for organic vapor.

Protective Gloves: Neoprene or other as recommended compatible by glove manufacturer.	**Eye Protection:** Safety glasses recommended.

Ventilation Requirements: Adequate ventilation to keep vapor concentration below TLV.

Other Protective Clothing & Equipment: None

Hygienic Work Practices: Wash hands with soap and water before handling food.

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING AND USE

Steps To Be Taken If Material Is Spilled Or Released: Absorb with suitable medium. Incinerate or landfill according to local, state or federal regulations. DO NOT FLUSH TO SEWER.

Waste Disposal Methods: Aerosol cans when vented to atmospheric pressure through normal use, pose no disposal hazard.

Precautions To Be Taken In Handling & Storage: Do not puncture or incinerate containers. Do not store at temperatures above 130°F.

Other Precautions &/or Special Hazards: KEEP OUT OF REACH OF CHILDREN.

We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind.

** Chemical Listed as Carcinogen or Potential Carcinogen. [a] NTP [b] IARC Monograph [c] OSHA [d] Not Listed [e] Animal Data Only

THIS MSDS IS CURRENT AS OF November 23, 2009. The DATE PREPARED section is the original date assembled and remains current until a change is necessary. This is tracked internally at the manufacturer by these date codes and therefore must remain as the originating date.

CITGO No. 2 Diesel Fuel, Low Sulfur, All Grades
Material Safety Data Sheet

CITGO Petroleum Corporation
P. O. Box 4689
Houston, TX 77210

MSDS No. AG2DF
Revision Date 12/31/2007

IMPORTANT: This MSDS is prepared in accordance with 29 CFR 1910.1200. Read this MSDS before transporting, handling, storing or disposing of this product and forward this information to employees, customers and users of this product.

Hazard Rankings	HMIS	NFPA
Health Hazard	* 2	0
Fire Hazard	2	2
Reactivity	0	0

* = Chronic Health Hazard

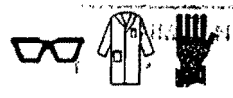
Emergency Overview

Physical State Liquid.
Color Transparent, clear to yellow or red. **Odor** Characteristic, kerosene-like.

WARNING!
Combustible liquid; vapor may cause flash fire.
Harmful or fatal if swallowed - can enter lungs and cause damage.
Can cause eye, skin or respiratory tract irritation.
May be harmful if inhaled or absorbed through the skin.
Overexposure can cause central nervous system (CNS) depression and/or other target organ effects.
Possible Cancer Hazard (See Section 3)
Harmful to aquatic organisms.

Protective Equipment

Minimum Recommended
See Section 8 for Details



SECTION 1. PRODUCT IDENTIFICATION

Trade Name	CITGO No. 2 Diesel Fuel, Low Sulfur, All Grades	**Technical Contact**	(832) 486-5940
Product Number	Various	**Medical Emergency**	(832) 486-4700
CAS Number	68476-34-6	**CHEMTREC Emergency (United States Only)**	(800) 424-9300
Product Family	Motor fuels.		

Synonyms No. 2-D Grade Diesel Fuel Oil (defined by ASTM D-975); Treated or Refined Diesel Fuel No. 2; Diesel No. 2; Diesel Motor Fuel No. 2; Diesel Oil (Medium); Grade 2 Distillate Fuel; Hydrodesulfurized (HDS) Light Catalytically Cracked Distillate; Middle Distillates (Petroleum); HDS Diesel; Hydrodesulfurized Medium Distillate; HDS Middle Distillate; C9-C16 Petroleum Hydrocarbons; Ultra Low Sulfur Diesel.

SECTION 2. COMPOSITION

This product may be composed, in whole or in part, of any of the following refinery streams:

Diesel Fuel No. 2 [CAS No.: 68476-34-6]
Hydrodesulfurized Middle Distillate (petroleum) [CAS No.: 64742-80-9]
Hydrodesulfurized Light Catalytic Cracked Distillate (Petroleum) [CAS No.: 68333-25-5]
Kerosene [CAS No.: 8008-20-6]
Hydrodesulfurized Kerosine (Petroleum) [CAS No.: 64742-81-0]

This product contains the following chemical components:

Component Name(s)	CAS Registry No.	Concentration (%)

Nonane, all isomers	Mixture	1 - 10
Trimethylbenzenes, all isomers	25551-13-7	0 - 2
Naphthalene	91-20-3	0 - 2
Cumene	98-82-8	0 - 1
Ethylbenzene	100-41-4	0 - 1

SECTION 3. HAZARDS IDENTIFICATION

Also see Emergency Overview and Hazard Ratings on the top of Page 1 of this MSDS.

Major Route(s) of Entry Skin contact. Inhalation.

Signs and Symptoms of Acute Exposure

Inhalation Breathing high concentrations may be harmful. Mist or vapor can irritate the throat and lungs. Breathing this material may cause central nervous system depression with symptoms including nausea, headache, dizziness, fatigue, drowsiness, or unconsciousness.

Eye Contact This material can cause eye irritation with tearing, redness, or a stinging or burning feeling. Further, it can cause swelling of the eyes with blurred vision. Effects may become more serious with repeated or prolonged contact.

Skin Contact This material can cause skin irritation. Symptoms include redness, itching, and burning of the skin. This material can be absorbed by the skin and produce central nervous system depression (headache, nausea, fatigue and/or other symptoms including unconsciousness). If the skin is damaged, absorption increases. Prolonged and/or repeated contact may cause severe dermatitis and/or more serious skin disorders. Chronic symptoms may include drying, swelling, scaling, blistering, cracking, and/or severe tissue damage.

Ingestion If swallowed, this material may irritate the mouth, throat, and esophagus. It can be absorbed into the blood stream through the stomach and intestinal tract. Symptoms may include a burning sensation of the mouth and esophagus, nausea and vomiting. In addition, it can cause central nervous system effects characterized by dizziness, staggering, drowsiness, delirium and/or loss of consciousness.

Because of the low viscosity, this material can enter the lungs directly by aspiration during swallowing or subsequent vomiting. Aspiration of a small amount of liquid can cause severe lung damage and/or death.

Chronic Health Effects Summary Secondary effects of ingestion and subsequent aspiration into the lungs may cause pneumatocele (lung cavity) formation and chronic lung dysfunction.

This product contains petroleum middle distillates similar to those shown to produce skin tumors on laboratory rodents following repeated application. All tumors appeared during the latter portion of the typical 2-year lifespan of the animals. Certain studies have shown that washing the exposed skin of the test animal with soap and water between treatments greatly reduces the potential tumorigenic effects. These data suggest that good personal hygiene is effective in reducing the risk of this potential adverse health effect.

This material and/or its components have been associated with developmental toxicity, reproductive toxicity, genotoxicity, immunotoxicity, and/or carcinogenicity. Refer to Section 11 of this MSDS for additional health-related information.

Conditions Aggravated by Exposure Disorders of the following organs or organ systems that may be aggravated by significant exposure to this material or its components include: Skin, Respiratory System, Liver, Kidneys, Central Nervous System (CNS)

Target Organs May cause damage to the following organs: kidneys, lungs, liver, mucous membranes, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea

Carcinogenic Potential

This material may contain ethylbenzene and naphthalene at concentrations above 0.1%. IARC has identified ethylbenzene and naphthalene as possibly carcinogenic to humans (Group 2B) based on laboratory animal studies. The NTP has determined that naphthalene is *reasonably anticipated to be a human carcinogen* based on sufficient evidence from studies in experimental animals. NTP has determined that exposure to diesel exhaust particulates, a complex mixture of combustion products of diesel fuel, is reasonably anticipated to be a human carcinogen.

OSHA Hazard Classification is indicated by an "X" in the box adjacent to the hazard title. If no "X" is present, the product does not exhibit the hazard as defined in the OSHA Hazard Communication Standard (29 CFR 1910.1200).

OSHA Health Hazard Classification				OSHA Physical Hazard Classification					
Irritant	X	Sensitizer		Combustible	X	Explosive		Pyrophoric	
Toxic		Highly Toxic		Flammable		Oxidizer		Water-reactive	
Corrosive		Carcinogenic		Compressed Gas		Organic Peroxide		Unstable	

SECTION 4. FIRST AID MEASURES

Take proper precautions to ensure your own health and safety before attempting rescue or providing first aid. For more specific information, refer to Exposure Controls and Personal Protection in Section 8 of this MSDS.

Inhalation

Move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If breathing is difficult, 100 percent humidified oxygen should be administered by a qualified individual. Seek medical attention immediately. Keep the affected individual warm and at rest.

Eye Contact

Check for and remove contact lenses. Flush eyes with cool, clean, low-pressure water for at least 15 minutes while occasionally lifting and lowering eyelids. Do not use eye ointment unless directed to by a physician. Seek medical attention if excessive tearing, irritation, or pain persists.

Skin Contact

Remove contaminated shoes and clothing. Flush affected area with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. Do not use ointments. If skin surface is not damaged, clean affected area thoroughly with mild soap and water. Seek medical attention if tissue appears damaged or if pain or irritation persists.

Ingestion

Do not induce vomiting. If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. Never give anything by mouth to a person who is not fully conscious. Do not leave victim unattended. Seek medical attention immediately.

Notes to Physician

INHALATION: Inhalation overexposure can produce toxic effects. Monitor for respiratory distress. If cough or difficulty in breathing develops, evaluate for upper respiratory tract inflammation, bronchitis, and pneumonitis. Administer supplemental oxygen with assisted ventilation, as required.

INGESTION: If ingested, this material presents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended. Consider activated charcoal and/or gastric lavage. If patient is obtunded, protect the airway by cuffed endotracheal intubation or by placement of the body in a Trendelenburg and left lateral decubitus position.

SECTION 5. FIRE FIGHTING MEASURES

NFPA Flammability Classification	NFPA Class-II combustible liquid.
Flash Point	Closed cup: AP 52°C (AP 125°F). (Pensky-Martens.)
Lower Flammable Limit	AP 0.6 % **Upper Flammable Limit** AP 7.5 %
Autoignition Temperature	>254°C (>489°F)
Hazardous Combustion Products	Carbon dioxide, carbon monoxide, smoke, fumes, unburned hydrocarbons and oxides of sulfur and nitrogen.
Special Properties	Combustible Liquid! This material releases vapors when heated above ambient temperatures. Vapors can cause a flash fire. Vapors can travel to a source of ignition and flashback. A vapor and air mixture can create an explosion hazard in confined spaces such as sewers. Use only with adequate ventilation. If container is not properly cooled, it can rupture in the heat of a fire.
Extinguishing Media	SMALL FIRE: Use dry chemicals, carbon dioxide, foam, or inert gas (nitrogen). Carbon dioxide and inert gas can displace oxygen. Use caution when applying carbon dioxide or inert gas in confined spaces. LARGE FIRE: Use foam, water fog, or water spray. Water fog and spray are effective in cooling containers and adjacent structures. However, water can cause frothing and/or may not extinguish the fire. Water can be used to cool the external walls of vessels to prevent excessive pressure, autoignition or explosion. DO NOT use a solid stream of water directly on the fire as the water may spread the fire to a larger area.
Protection of Fire Fighters	Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Evacuate area and fight the fire from a maximum distance or use unmanned hose holders or monitor nozzles. Cover pooling liquid with foam. Containers can build pressure if exposed to radiant heat; cool adjacent containers with flooding quantities of water until well after the fire is out. Withdraw immediately from the area if there is a rising sound from a venting safety device or discoloration of vessels, tanks, or pipelines. Be aware that burning liquid will float on water. Notify appropriate authorities of potential fire and explosion hazard if liquid enter sewers or waterways.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Take proper precautions to ensure your own health and safety before attempting spill control or clean-up. For more specific information, refer to the Emergency Overview on Page 1, Exposure Controls and Personal Protection in Section 8 and Disposal Considerations in Section 13 of this MSDS.

Combustible Liquid! Release can result in a fire hazard. Evacuate all non-essential personnel from release area. Establish a regulated zone with site control and security. Eliminate all ignition sources. Stop the leak if it can done without risk. A vapor-suppressing foam may be used to reduce vapors. Properly bond or ground all equipment used when handling this material. Avoid skin contact. Do not walk through spilled material. Verify that responders are properly trained and wearing appropriate personnel protective equipment. Dike far ahead of a liquid spills. Do not allow released material to entry waterways, sewers, basements, or confined areas. This material will float on water. Absorb or cover with dry earth, sand or other non-combustible material. Use clean, non-sparking tools to collect absorbed material. Place spent sorbent materials, free liquids and other clean-up debris into proper waste containers for appropriate disposal. Certain releases must be reported to the National Response Center (800/424-8802) and state or regulatory authorities. Comply with all laws and regulations.

SECTION 7. HANDLING AND STORAGE

Handling

Combustible Liquid!
A static electrical charge can accumulate when this material is flowing through pipes, nozzles or filters and when it is agitated. A static spark discharge can ignite accumulated vapors particularly during dry weather conditions. Always bond receiving containers to the fill pipe before and during loading. Always keep nozzle in contact with the container throughout the loading process. Do not fill any portable container in or on a vehicle. Special precautions, such as reduced loading rates and increased monitoring, must be observed during "switch loading" operations (i.e., loading this material in tanks or shipping compartments that previously containing gasoline or similar low flash point products).

Fire hazard increases as product temperature approaches its flash point. Keep container closed and drum bungs in place. Remove spillage immediately from walking areas. Do not handle or store near heat, sparks or other potential ignition sources. Do not handle or store with oxidizing agents. Avoid breathing mist or vapor. Never siphon by mouth. Do not taste or swallow. Avoid contact with eyes, skin and clothing. Use gloves constructed of impervious materials and protective clothing if direct contact is anticipated. Provide ventilation to maintain exposure potential below applicable exposure levels. Avoid water contamination. Wash thoroughly after handling. Prevent contact with food or tobacco products.

When performing repairs and maintenance on contaminated equipment, keep unnecessary persons from hazard area. Eliminate heat, flame and other potential ignition sources. Drain and purge equipment, as necessary, to remove material residues. Remove contaminated clothing. Wash exposed skin thoroughly with soap and water after handling.

Do not use this material as fuel for equipment, such as portable heaters, in enclosed areas. Hazardous combustion products can cause death.

Protect the environment from releases of this material. Prevent discharges to surface waters and groundwater. Maintain handling, transfer and storage equipment in proper working order.

Misuse of empty containers can be dangerous. Empty containers may contain material residues which can ignite with explosive force. **Cutting or welding of empty containers can cause fire, explosion, or release of toxic fumes from residues.** Do not pressurize or expose empty containers to open flame, sparks, or heat. Keep container closed and drum bungs in place. All label warnings and precautions must be observed. Return empty drums to a qualified reconditioner. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling, or disposing of empty containers and/or waste residues of this material.

Storage

Store in a cool, dry, well-ventilated place. Keep containers tightly closed. Do not store this product near heat, flame or other potential ignition sources. Do not store with oxidizers. Do not store this product in unlabeled containers. Do not puncture or incinerate containers. Ground all equipment containing this material. All electrical equipment in areas where this material is stored or handled must meet all applicable requirements of the NFPA's National Electrical Code (NEC). Store and transport in accordance with all applicable laws.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls

Provide ventilation or other engineering controls to keep the airborne concentrations of vapor or mists below the applicable workplace exposure limits indicated below. All electrical equipment should comply with the National Electric Code. An emergency eye wash station and safety shower should be located near the work-station.

Personal Protective Equipment

Personal protective equipment should be selected based upon the conditions under which this material is used. A hazard assessment of the work area for PPE requirements should be conducted by a qualified professional pursuant to OSHA regulations. The following pictograms represent the minimum requirements for personal protective equipment. For certain operations, additional PPE may be required.

Eye Protection	Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. Chemical goggles should be worn during transfer operations or when there is a likelihood of misting, splashing, or spraying of this material. A suitable emergency eye wash water and safety shower should be located near the work station.
Hand Protection	Avoid skin contact. Use heavy duty gloves constructed of chemical resistant materials such as Viton® or heavy nitrile rubber. Wash hands with plenty of mild soap and water before eating, drinking, smoking, use of toilet facilities or leaving work. DO NOT use gasoline, kerosene, solvents or harsh abrasives as skin cleaners.
Body Protection	Avoid skin contact. Wear long-sleeved fire-retardant garments (e.g., Nomex®) while working with flammable and combustible liquids. Additional chemical-resistant protective gear may be required if splashing or spraying conditions exist. This may include an apron, boots and additional facial protection. If product comes in contact with clothing, immediately remove soaked clothing and shower. Promptly remove and discard contaminated leather goods.
Respiratory Protection	Airborne concentration will determine the level of respiratory protection required. Respiratory protection is normally not required unless the product is heated or misted. For known or anticipated vapor or mist concentrations above the occupational exposure guidelines (see below), use a NIOSH-approved organic vapor respirator equipped with a dust/mist prefilter if adequate protection is provided. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134).
General Comments	Warning! Use of this material in spaces without adequate ventilation may result in generation of hazardous levels of combustion products and/or inadequate oxygen levels for breathing. Odor is an inadequate warning for hazardous conditions.

Occupational Exposure Guidelines

Substance	Applicable Workplace Exposure Levels
Nonane, all isomers	**ACGIH (United States).** TWA: 200 ppm 8 hour(s).
Ethylmethylbenzene, all isomers	Not available.
Trimethylbenzenes, all isomers	**ACGIH (United States).** TWA: 25 ppm 8 hour(s).
Naphthalene	**ACGIH (United States). Skin** TWA: 10 ppm 8 hour(s). STEL: 15 ppm 15 minute(s). **OSHA (United States).** TWA: 10 ppm 8 hour(s).
Cumene	**ACGIH (United States).** TWA: 50 ppm 8 hour(s). **OSHA (United States). Skin** TWA: 50 ppm 8 hour(s).
n-Propylbenzene	Not available.
1, 2, 4-Trimethylbenzene	Not available.
Ethylbenzene	**ACGIH (United States).** TWA: 100 ppm 8 hour(s). STEL: 125 ppm 15 minute(s). **OSHA (United States).** TWA: 100 ppm 8 hour(s).
Xylene, all isomers	**ACGIH (United States).** TWA: 100 ppm 8 hour(s). STEL: 150 ppm 15 minute(s). **OSHA (United States).** TWA: 100 ppm 8 hour(s).
Diesel exhaust particulate	Not available.

Benzene	**ACGIH (United States). Skin** TWA: 0.5 ppm 8 hour(s). STEL: 2.5 ppm 15 minute(s). **OSHA (United States). Skin Notes: See Table Z-2 for exclusions in 20 CFR 1910.1028 to the PEL.** TWA: 1 ppm 8 hour(s). STEL: 5 ppm 15 minute(s).
Toluene	**ACGIH (United States). Skin** TWA: 20ppm 8 hour(s). **OSHA (United States).** TWA: 200 ppm 8 hour(s). CEIL: 300 ppm PEAK: 500 ppm
Middle distillates, petroleum	Not available.
Straight-run middle distillate (petroleum)	**ACGIH (United States, 1998). Skin** TWA: 100 mg/m ^{3}
Distillates, petroleum, light catalytic cracked	Not available.
Kerosene	**NIOSH REL (United States).** TWA: 100 mg/m ^{3} 8 hour(s).
Hydrodesulfurized middle distillate (petroleum)	Not available.
Hydrodesulfurized Kerosine (Petroleum)	Not available.
Distillates, petroleum, hydrodesulfurized light catalytic cracked	Not available.
Diesel Fuel No. 2	**ACGIH TLV (United States). Skin** TWA: 100 mg/m ^{3} 8 hour(s).

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES (TYPICAL)

Physical State	Liquid.	**Color**	Transparent, clear to yellow or red.	**Odor**	Characteristic, kerosene-like.
Specific Gravity	AP 0.84 (Water = 1)	**pH**	Not Applicable.	**Vapor Density**	AP 5 (Air = 1)
Boiling Range	154° C (309° F) to 371° C (700° F)			**Melting/Freezing Point**	Not available.
Vapor Pressure	<0.3 kPa (<2 mm Hg) (at 20°C)			**Volatility**	840 g/l VOC (w/v)
Solubility in Water	Very slightly soluble in cold water. (<0.1 % w/w)			**Viscosity (cSt @ 40°C)**	AP 3
Flash Point	Closed cup: AP 52°C (AP 125°F). (Pensky-Martens.)				
Additional Properties	Density = AP 7.0 lbs/gal. Viscosity (ASTM D2161) = 30 - 40 SUS @ 100° F				

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability	Stable. **Hazardous Polymerization** Not expected to occur.
Conditions to Avoid	Keep away from all ignition sources and strong oxidizing conditions.
Materials Incompatibility	Strong acids, alkalies, and oxidizers such as liquid chlorine, other halogens, hydrogen peroxide and oxygen.
Hazardous Decomposition Products	No additional hazardous decomposition products were identified other than the combustion products identified in Section 5 of this MSDS.

SECTION 11. TOXICOLOGICAL INFORMATION

For other health-related information, refer to the Emergency Overview on Page 1 and the Hazards Identification in Section 3 of this MSDS.

Toxicity Data

Diesel Fuel, No. 2
ORAL LD50, Acute: 12,000 to 17,500 mg/kg or 9.0 ml/kg [Rat]
DERMAL LD50, Acute: >5.0 ml/kg [Rabbit screen level].
DRAIZE EYE, Acute: Mild irritant [Rabbit]
DRAIZE DERMAL, Acute: Severe skin irritant [Rabbit].
BUEHLER DERMAL, Acute: Non-sensitizing [Guinea Pig]
14-Day DERMAL, Sub-chronic: 0% and 67% mortality at 4.0 and 8.0 ml/kg [Rabbit]
62-Week DERMAL, Chronic: 0.05 ml/kg 3x/week [Mouse] - Extreme skin irritation.
97-Week DERMAL, Chronic: 243 g/kg applied 3x/week [Mouse] - Extreme skin irritation. Moderate increase in contact-point skin tumors.
MUTAGENICITY:
Modified Ames Assay: Negative. [Salmonella typhimurium]
In-vitro SCE Ovary Assay: Negative. [Chinese Hamster]
In-vitro Lymphoma Assay: Negative. [Mouse]
In-vivo Dominant Lethal Assay: Negative. [Mouse]
In-vivo Bone Marrow Assay: Clastogenic at 2.0 ml/kg and 6.0 ml/kg [Rat]

Diesel exhaust particulate
Lung tumor and lymphomas were identified in rats and mice exposed to unfiltered diesel fuel exhaust in chronic inhalation studies. Further, epidemiological studies have identified increase incidences of lung cancer in US railroad workers and bladder cancer in bus and truck drivers possibly associated with exposure to diesel engine exhaust. NTP has determined that exposure to diesel exhaust particulates, a complex mixture of combustion products of diesel fuel, is reasonably anticipated to be a human carcinogen. In addition, NIOSH has identified complete diesel exhaust as a potential carcinogen.

Trimethylbenzenes, all isomers
Studies of Workers:
Levels of total hydrocarbon vapors present in the breathing atmosphere of these workers ranged from 10 to 60 ppm. The TCLo for humans is 10 ppm, with somnolence and respiratory tract irritation noted.

Studies in Laboratory Animals:
In inhalation studies with rats, four of ten animals died after exposures of 2400 ppm for 24 hours. An oral dose of 5 mL/kg resulted in death in one of ten rats. Minimum lethal intraperitoneal doses were 1.5 to 2.0 mL/kg in rats and 1.13 to 12 mL/kg in guinea pigs. Mesitylene (1, 3, 5 Trimethylbenzene) inhalation at concentrations of 1.5, 3.0, and 6.0 mg/L for six hours was associated with dose-related changes in white blood cell counts in rats. No significant effects on the complete blood count were noted with six hours per day exposure for five weeks, but elevations of alkaline phosphatase and SGOT were observed. Central nervous system depression and ataxia were noted in rats exposed to 5,100 to 9,180 ppm for two hours.

Naphthalene
Studies in Humans Overexposed to Naphthalene:
Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants as a result of hemolytic anemia from over-exposure to naphthalene. Persons with Glucose 6-phosphate dehydrogenase (G6PD) deficiency are more prone to the hemolytic effects of naphthalene. Adverse effects on the kidney have also been reported from over-exposure to naphthalene but these effects are believed to be a consequence of hemolytic anemia, and not a direct effect.

Studies in Laboratory Animals:
Hemolytic anemia has been observed in laboratory animals exposed to naphthalene. Laboratory rodents exposed to naphthalene vapor for 2 years (lifetime studies) developed non-neoplastic and neoplastic tumors and inflammatory lesions of the nasal and respiratory

tract. Cataracts and other adverse effects on the eye have been observed in laboratory animals exposed to high levels of naphthalene. Findings from a large number of bacterial and mammalian cell mutation assays have been negative. A few studies have shown chromosomal effects (elevated levels of Sister Chromatid Exchange or chromosomal aberrations) *in vitro*.

Ethylbenzene
Effects from Acute Exposure:
ORAL (LD50), Acute: 3,500 mg/kg [Rat].
DERMAL (LD50), Acute: 17,800 uL/kg [Rabbit].
INTRAPERITONEAL (LD50), Acute: 2,624 mg/kg [Rat].

Effects from Prolonged or Repeated Exposure:
Findings from a 2-year inhalation study in rodents conducted by NTP were as follows: Effects were observed only at the highest exposure level (750 ppm). At this level the incidence of renal tumors was elevated in male rats (tubular carcinomas) and female rats (tubular adenomas). Also, the incidence of tumors was elevated in male mice (alveolar and bronchiolar carcinomas) and female mice (hepatocellular carcinomas). IARC has classified ethyl benzene as "possibly carcinogenic to humans" (Group 2B). Studies in laboratory animals indicate some evidence of post-implantation deaths following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals indicate limited evidence of renal malformations, resorptions, and developmental delays following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals indicate some evidence of adverse effects on the liver, kidney, thyroid, and pituitary gland.

Middle distillates, petroleum
Long-term repeated (lifetime) skin exposure to similar materials has been reported to result in an increase in skin tumors in laboratory rodents. The relevance of these findings to humans is not clear at this time.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Freshwater Toxicity:
Concentration: 2400 ppm Exposure: 48 hrs. Species: Juven. Am. Shad (*Squalius cephalus*) Assay: TLM
Concentration: >127 ppm Exposure: 96 hrs. Species: Bluegill (*Lepomis macrochirus*) Assay: LC50

Saltwater Toxicity
Concentration: 10 ppm Exposure: 96 hrs. Species: Menhaden (*Brevoortia patronus*) Assay: LC50
Concentration: 10 ppm Exposure: 96 hrs. Species: Grass Shrimp Assay: LC50

Environmental Fate

If spilled, this material will normally evaporate. Hydrocarbon components may contribute to atmospheric smog. If released to the subsoils, petroleum middle distillate fuels will strongly adsorb to soils. Groundwater should be considered as an exposure pathway. Liquid and vapor can migrate through the subsurface and preferential pathways (such as utility line backfill) to downgradient receptors.

Middle distillates are potentially toxic to freshwater and saltwater ecosystems. Distillate fuels will normally float on water. In stagnant or slow-flowing waterways, a hydrocarbon layer can cover a large surface area. As a result, this oil layer can limit or eliminate natural atmospheric oxygen transport into the water. With time, if not removed, oxygen depletion in the waterway can cause a fish kill or create an anaerobic environment. Also, this coating action can also kill plankton, algae, and water birds.

SECTION 13. DISPOSAL CONSIDERATIONS

Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly, it is the responsibility of the user to determine the proper storage, transportation, treatment and/or disposal methodologies for spent materials and residues at the time of disposition.

Maximize material recovery for reuse or recycling. Recovered non-usable material may be regulated by US EPA as a hazardous waste due to its ignitibility (D001) and/or its toxic (D018) characteristics. In addition, conditions of use may cause this material to become a hazardous waste, as defined by Federal or State regulations. It is the responsibility of the user to determine if the material is a hazardous waste at the time of disposal. Transportation, treatment, storage, and disposal of waste material must be conducted in accordance with RCRA regulations (see 40 CFR Parts 260 through 271). Contact your regional US EPA office for guidance concerning case specific disposal issues. State and/or local regulations might be even more restrictive.

SECTION 14. TRANSPORT INFORMATION

The shipping description below may not represent requirements for all modes of transportation, shipping methods or locations outside of the United States.

US DOT Status A U.S. Department of Transportation (DOT) regulated material. The following U.S. DOT hazardous materials shipping description applies to bulk packaged material that is transported by highway or rail. Alternate shipping descriptions may be required for product transported by marine vessel, air or other method and for non-bulk packaged material.

Proper Shipping Name Diesel Fuel, Combustible liquid, NA1993, PG III

Hazard Class DOT Class: Combustible liquid with a flash point greater than 37.8°C (100°F).

Packing Group III

UN/NA Number NA 1993

Reportable Quantity A Reportable Quantity (RQ) has not been established for this material.

Placard(s)

Emergency Response Guide No. 128

MARPOL III Status Not a DOT "Marine Pollutant" per 49 CFR 171.8.

SECTION 15. REGULATORY INFORMATION

TSCA Inventory This product and/or its components are listed on the Toxic Substances Control Act (TSCA) inventory.

SARA 302/304 Emergency Planning and Notification The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to Subparts 302 and 304 to submit emergency planning and notification information based on Threshold Planning Quantities (TPQs) and Reportable Quantities (RQs) for "Extremely Hazardous Substances" listed in 40 CFR 302.4 and 40 CFR 355. No components were identified.

SARA 311/312 Hazard Identification The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to this subpart to submit aggregate information on chemicals by "Hazard Category" as defined in 40 CFR 370.2. This material would be classified under the following hazard categories:

Fire, Acute (Immediate) Health Hazard, Chronic (Delayed) Health Hazard

CITGO No. 2 Diesel Fuel, Low Sulfur, All Grades

SARA 313 Toxic Chemical Notification and Release Reporting	This product contains the following components in concentrations above *de minimis* levels that are listed as toxic chemicals in 40 CFR Part 372 pursuant to the requirements of Section 313 of SARA: Naphthalene [CAS No.: 91-20-3] Concentration: 2% Ethylbenzene [CAS No.: 100-41-4] Concentration: 0.9%
CERCLA	The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center concerning release of quantities of "hazardous substances" equal to or greater than the reportable quantities (RQ's) listed in 40 CFR 302.4. As defined by CERCLA, the term "hazardous substance" does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically designated in 40 CFR 302.4. Chemical substances present in this product or refinery stream that may be subject to this statute are: Naphthalene [CAS No.: 91-20-3] RQ = 100 lbs. (45.36 kg) Concentration: 2% Cumene [CAS No.: 98-82-8] RQ = 5000 lbs. (2268 kg) Concentration: 0.9% Ethylbenzene [CAS No.: 100-41-4] RQ = 1000 lbs. (453.6 kg) Concentration: 0.9% Xylene, all isomers [CAS No.: 1330-20-7] RQ = 100 lbs. (45.36 kg) Concentration: 0.9% Benzene [CAS No.: 71-43-2] RQ = 10 lbs. (4.536 kg) Concentration: 0.045%
Clean Water Act (CWA)	This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.
California Proposition 65	This material may contain the following components which are known to the State of California to cause cancer, birth defects or other reproductive harm, and may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5): Diesel exhaust particulate Naphthalene: <2% Ethylbenzene: <1% Toluene: <0.1% Benzene: <0.1%
New Jersey Right-to-Know Label	Diesel Fuel
Additional Remarks	As minimum requirements, CITGO recommends that the following advisory information be displayed on equipment used to dispense diesel fuel. Additional warnings specified by various regulatory authorities may be required: **"Diesel Fuel DANGER: Combustible Liquid. Use as a Motor Fuel Only.** DO NOT FILL CONTAINERS THAT HAVE PREVIOUSLY CONTAINED GASOLINE OR OTHER FLAMMABLE LIQUIDS. Sparks From static electricity can ignite flammable vapor residues. PLACE CONTAINER ON GROUND. DO NOT FILL ANY PORTABLE CONTAINER IN OR ON A VEHICLE. Containers must be metal or other material approved for storing diesel fuel. Keep nozzle spout in contact with the container during the entire filling operation. NO SMOKING! Do not leave nozzle unattended during filling. **HARMFUL OR FATAL IF SWALLOWED.** If swallowed, do not induce vomiting. Call Physician Immediately. Keep Out of Reach of Children. Avoid prolonged breathing of vapors. Never siphon by mouth. Do not store in vehicle or living space. Store and use in a well ventilated area. Do not use near heat, spark or flame. Keep container closed."

SECTION 16. OTHER INFORMATION

Refer to the top of Page 1 for the HMIS and NFPA Hazard Ratings for this product.

REVISION INFORMATION

Version Number	5.1
Revision Date	12/31/2007

ABBREVIATIONS

AP: Approximately EQ: Equal >: Greater Than <: Less Than NA: Not Applicable ND: No Data NE: Not Establishe

ACGIH: American Conference of Governmental Industrial Hygienists
AIHA: American Industrial Hygiene Association
IARC: International Agency for Research on Cancer
NTP: National Toxicology Program
NIOSH: National Institute of Occupational Safety and Health
OSHA: Occupational Safety and Health Administration
NPCA: National Paint and Coating Manufacturers Association
HMIS: Hazardous Materials Information System
NFPA: National Fire Protection Association
EPA: US Environmental Protection Agency

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THE CONDITIONS OR METHODS OF HANDLING, STORAGE, USE, AND DISPOSAL OF THE PRODUCT ARE BEYOND OUR CONTROL AND MAY BE BEYOND OUR KNOWLEDGE. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH HANDLING, STORAGE, USE OR DISPOSAL OF THE PRODUCT.

***** END OF MSDS *****

Safety Data Sheet

According to OSHA HCS 2012 (29 CFR 1910.1200)

Section 1: Identification

Product Identifier: **Megaflow® AW Hydraulic Oil**

Other means of Identification: Megaflow® AW Hydraulic Oil 22, 32, 46, 68, 100, 150, 220, 320
Megaflow® AW Ultra-Clean Hydraulic Oil 32, 46, 68, 100

SDS Number: **814637**

Intended Use: Hydraulic Fluid

Uses Advised Against: All others

Emergency Health and Safety Number: Chemtrec: 800-424-9300 (24 Hours)

Manufacturer:
Phillips 66 Lubricants
P.O. Box 4428
Houston, TX 77210

SDS Information:
Phone: 800-762-0942
Email: SDS@P66.com
URL: www.Phillips66.com

Customer Service:
U.S.: 1-800-822-6457 or International: +1-83-2486-3363
Technical Information: 1-877-445-9198

Section 2: Hazards Identification

Classified Hazards
This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Other Hazards
None Known

Label Elements

No classified hazards

Section 3: Composition / Information on Ingredients

Chemical Name	CASRN	Concentration*
Distillates, petroleum, hydrotreated heavy paraffinic	64742-54-7	<100
Residual oils, petroleum, solvent-dewaxed	64742-62-7	<90
Non-Hazardous Materials	VARIOUS	<5

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Section 4: First Aid Measures

Eye Contact: If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.

Skin Contact: Remove contaminated shoes and clothing and cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops and persists, seek medical attention. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician. (see Note to Physician)

Inhalation (Breathing): First aid is not normally required. If breathing difficulties develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. Seek immediate medical attention.

Ingestion (Swallowing): First aid is not normally required; however, if swallowed and symptoms develop, seek medical attention.

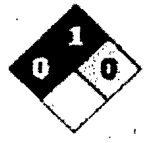
Most important symptoms and effects, both acute and delayed: Inhalation of oil mists or vapors generated at elevated temperatures may cause respiratory irritation. Accidental ingestion can result in minor irritation of the digestive tract, nausea and diarrhea. Dry skin and possible irritation with repeated or prolonged exposure.

Notes to Physician: Acute aspirations of large amounts of oil-laden material may produce a serious aspiration pneumonia. Patients who aspirate these oils should be followed for the development of long-term sequelae. Inhalation exposure to oil mists below current workplace exposure limits is unlikely to cause pulmonary abnormalities. When using high-pressure equipment, injection of product under the skin can occur. In this case, the casualty should be sent immediately to the hospital. Do not wait for symptoms to develop. High-pressure hydrocarbon injection injuries may produce substantial necrosis of underlying tissue despite an innocuous appearing external wound. These injuries often require extensive emergency surgical debridement and all injuries should be evaluated by a specialist in order to assess the extent of injury. Early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

Section 5: Fire-Fighting Measures

NFPA 704 Hazard Class

Health: 0 **Flammability:** 1 **Instability:** 0



0 (Minimal)
1 (Slight)
2 (Moderate)
3 (Serious)
4 (Severe)

Extinguishing Media: Dry chemical, carbon dioxide, foam, or water spray is recommended. Water or foam may cause frothing of materials heated above 212°F / 100°C. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

Specific hazards arising from the chemical

Unusual Fire & Explosion Hazards: This material may burn, but will not ignite readily. If container is not properly cooled, it can rupture in the heat of a fire.

Hazardous Combustion Products: Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Oxides of sulfur, nitrogen or phosphorus may also be formed.

Special protective actions for firefighters: For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done safely. Avoid spreading burning liquid with water used for cooling purposes.

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: This material may burn, but will not ignite readily. Keep all sources of ignition away from spill/release. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

Environmental Precautions: Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Use water sparingly to minimize environmental contamination and reduce disposal requirements. If spill occurs on water notify appropriate authorities and advise shipping of any hazard. Spills into or upon navigable waters, the contiguous zone, or adjoining shorelines that cause a sheen or discoloration on the surface of the water, may require notification of the National Response Center (phone number 800-424-8802).

Methods and material for containment and cleaning up: Notify relevant authorities in accordance with all applicable regulations. Immediate cleanup of any spill is recommended. Dike far ahead of spill for later recovery or disposal. Absorb spill with inert material such as sand or vermiculite, and place in suitable container for disposal. If spilled on water remove with appropriate methods (e.g. skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken. See Section 13 for information on appropriate disposal.

Section 7: Handling and Storage

Precautions for safe handling: Keep away from flames and hot surfaces. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8). Spills will produce very slippery surfaces. High pressure injection of hydrocarbon fuels, hydraulic oils or greases under the skin may have serious consequences even though no symptoms or injury may be apparent. This can happen accidentally when using high pressure equipment such as high pressure grease guns, fuel injection apparatus or from pinhole leaks in tubing of high pressure hydraulic oil equipment.

Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. Do not wear contaminated clothing or shoes.

Conditions for safe storage: Storage temperatures above 113°F may lead to thermal decomposition, resulting in the generation of hydrogen sulfide and other sulfur containing gases. Use and store this material in cool, dry, well-ventilated area away from heat and all sources of ignition. Keep container(s) tightly closed and properly labeled. Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1, and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Section 8: Exposure Controls / Personal Protection

Chemical Name	ACGIH	OSHA	Other
Distillates, petroleum, hydrotreated heavy paraffinic	TWA: 5mg/m³ STEL: 10 mg/m³ as Oil Mist, if Generated	TWA: 5mg/m³ as Oil Mist, if Generated	—
Residual oils, petroleum, solvent-dewaxed	TWA: 5mg/m³ STEL: 10 mg/m³ as Oil Mist, if Generated	TWA: 5mg/m³ as Oil Mist, if Generated	—

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Eye/Face Protection: The use of eye/face protection is not normally required; however, good industrial hygiene practice suggests the use of eye protection that meets or exceeds ANSI Z.87.1 whenever working with chemicals.

Skin/Hand Protection: The use of skin protection is not normally required; however, good industrial hygiene practice suggests the use of gloves or other appropriate skin protection whenever working with chemicals. Suggested protective materials: Nitrile

Respiratory Protection: Where there is potential for airborne exposure above the exposure limit a NIOSH certified air purifying respirator equipped with R or P95 filters may be used.

A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use. Air purifying respirators provide limited protection and cannot be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturer's instructions), in oxygen deficient (less than 19.5 percent oxygen) situations, or under conditions that are immediately dangerous to life and health (IDLH).

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

Section 9: Physical and Chemical Properties

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm). Data represent typical values and are not intended to be specifications.

Appearance: Amber, Transparent
Physical Form: Liquid
Odor: Petroleum
Odor Threshold: No data
pH: Not applicable
Vapor Density (air=1): >1
Upper Explosive Limits (vol % in air): No data
Lower Explosive Limits (vol % in air): No data
Evaporation Rate (nBuAc=1): No data
Particle Size: N/A
Percent Volatile: No data
Flammability (solid, gas): May Ignite
Solubility in Water: Negligible

Flash Point: > 302 °F / > 150 °C
Test Method: Pensky-Martens Closed Cup (PMCC), ASTM D93, EPA 1010
Initial Boiling Point/Range: No data
Vapor Pressure: <1 mm Hg
Partition Coefficient (n-octanol/water) (Kow): No data
Melting/Freezing Point: No data
Auto-ignition Temperature: No data
Decomposition Temperature: No data
Specific Gravity (water=1): 0.85-0.89 @ 60°F (15.6°C)
Bulk Density: 7.08-7.41 lbs/gal
Viscosity: 4.0 - 25 cSt @ 100°C; 21 - 345 cSt @ 40°C
Pour Point: < 10 °F / < -12 °C

Section 10: Stability and Reactivity

Reactivity: Not chemically reactive.

Chemical stability: Stable under normal ambient and anticipated conditions of use.

Possibility of hazardous reactions: Hazardous reactions not anticipated.

Conditions to avoid: Avoid all possible sources of ignition. Extended exposure to high temperatures can cause decomposition.

Incompatible materials: Avoid contact with strong oxidizing agents and strong reducing agents.

Hazardous decomposition products: Not anticipated under normal conditions of use.

Section 11: Toxicological Information

Information on Toxicological Effects of Substance/Mixture

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	Unlikely to be harmful		>5 mg/L (mist, estimated)
Dermal	Unlikely to be harmful		> 2 g/kg (estimated)
Oral	Unlikely to be harmful		> 5 g/kg (estimated)

Aspiration Hazard: Not expected to be an aspiration hazard.

Skin Corrosion/Irritation: Not expected to be irritating. Repeated exposure may cause skin dryness or cracking.

Serious Eye Damage/Irritation: Not expected to be irritating.

Skin Sensitization: No information available on the mixture, however none of the components have been classified for skin sensitization (or are below the concentration threshold for classification).

Respiratory Sensitization: No information available.

Specific Target Organ Toxicity (Single Exposure): Not expected to cause organ effects from single exposure.

Specific Target Organ Toxicity (Repeated Exposure): Not expected to cause organ effects from repeated exposure.

Carcinogenicity: No information available on the mixture, however none of the components have been classified for carcinogenicity (or are below the concentration threshold for classification).

Germ Cell Mutagenicity: No information available on the mixture, however none of the components have been classified for germ cell mutagenicity (or are below the concentration threshold for classification).

Reproductive Toxicity: No information available on the mixture, however none of the components have been classified for reproductive toxicity (or are below the concentration threshold for classification).

Information on Toxicological Effects of Components

Lubricant Base Oil (Petroleum)

Carcinogenicity: The petroleum base oils contained in this product have been highly refined by a variety of processes including severe hydrocracking/hydroprocessing to reduce aromatics and improve performance characteristics. All of the oils meet the IP-346 criteria of less than 3 percent PAH's and are not considered carcinogens by NTP, IARC, or OSHA.

Section 12: Ecological Information

GHS Classification:
No classified hazards

Toxicity: All acute aquatic toxicity studies on samples of lubricant base oils show acute toxicity values greater than 100 mg/L for invertebrates, algae and fish. These tests were carried out on water accommodated fractions and the results are consistent with the predicted aquatic toxicity of these substances based on their hydrocarbon compositions.

Persistence and Degradability: The hydrocarbons in this material are not readily biodegradable, but since they can be degraded by microorganisms, they are regarded as inherently biodegradable.

Bioaccumulative Potential: Log Kow values measured for the hydrocarbon components of this material are greater than 5.3, and therefore regarded as having the potential to bioaccumulate. In practice, metabolic processes may reduce bioconcentration.

Mobility in Soil: Volatilization to air is not expected to be a significant fate process due to the low vapor pressure of this material. In water, base oils will float and spread over the surface at a rate dependent upon viscosity. There will be significant removal of hydrocarbons from the water by sediment adsorption. In soil and sediment, hydrocarbon components will show low mobility with adsorption to sediments being the predominant physical process. The main fate process is expected to be slow biodegradation of the hydrocarbon constituents in soil and sediment.

Other adverse effects: None anticipated.

Section 13: Disposal Considerations

The generator of a waste is always responsible for making proper hazardous waste determinations and needs to consider state and local requirements in addition to federal regulations.

This material, if discarded as produced, would not be a federally regulated RCRA "listed" hazardous waste and is not believed to exhibit characteristics of hazardous waste. See Sections 7 and 8 for information on handling, storage and personal protection and Section 9 for physical/chemical properties. It is possible that the material as produced contains constituents which are not required to be listed in the MSDS but could affect the hazardous waste determination. Additionally, use which results in chemical or physical change of this material could subject it to regulation as a hazardous waste.

This material under most intended uses would become "Used Oil" due to contamination by physical or chemical impurities. Whenever possible, Recycle used oil in accordance with applicable federal and state or local regulations. Container contents should be completely used and containers should be emptied prior to discard.

Section 14: Transport Information

U.S. Department of Transportation (DOT)

Shipping Description: *Not regulated*
Note: *If shipped by land in a packaging having a capacity of 3,500 gallons or more, the provisions of 49 CFR, Part 130 apply. (Contains oil)*

International Maritime Dangerous Goods (IMDG)

Shipping Description: *Not regulated*
Note: *U.S. DOT compliance requirements may apply. See 49 CFR 171.22, 23 & 25.*

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

International Civil Aviation Org. / International Air Transport Assoc. (ICAO/IATA)

UN/ID #: *Not regulated*
Note: *U.S. DOT compliance requirements may apply. See 49 CFR 171.22, 23 & 24.*

	LTD. QTY	Passenger Aircraft	Cargo Aircraft Only
Packaging Instruction #:	—	—	—
Max. Net Qty. Per Package:	—	—	—

Section 15: Regulatory Information

CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds):

This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

CERCLA/SARA - Section 311/312 (Title III Hazard Categories)

Acute Health Hazard:	No
Chronic Health Hazard:	No
Fire Hazard:	No
Pressure Hazard:	No
Reactive Hazard:	No

CERCLA/SARA - Section 313 and 40 CFR 372:

This material does not contain any chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372.

EPA (CERCLA) Reportable Quantity (in pounds):

This material does not contain any chemicals with CERCLA Reportable Quantities.

California Proposition 65:

This material does not contain any chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm at concentrations that trigger the warning requirements of California Proposition 65.

International Hazard Classification

Canada:

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the Regulations.

WHMIS Hazard Class:

none

National Chemical Inventories

All components are either listed on the US TSCA Inventory, or are not regulated under TSCA
All components are either on the DSL, or are exempt from DSL listing requirements.

U.S. Export Control Classification Number: EAR99

Section 16: Other Information

Date of Issue:	Previous Issue Date:	SDS Number:	Status:
21-Aug-2013	16-Aug-2013	814637	FINAL

Revised Sections or Basis for Revision:
Periodic review and update; Regulatory information (Section 15)

Guide to Abbreviations:
ACGIH = American Conference of Governmental Industrial Hygienists; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; GHS = Globally Harmonized System; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)

Disclaimer of Expressed and Implied Warranties:
The information presented in this Safety Data Sheet is based on data believed to be accurate as of the date this Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

Safety Data Sheet

According to OSHA HCS 2012 (29 CFR 1910.1200)

Section 1: Identification

Product Identifier: Extra Duty Gear Oil

Other means of identification:
Extra Duty Gear Oil 68
Extra Duty Gear Oil 100
Extra Duty Gear Oil 150
Extra Duty Gear Oil 220
Extra Duty Gear Oil 320
Extra Duty Gear Oil 460

SDS Number: 815913
Intended Use: Industrial Gear Oil
Uses Advised Against: All others
Emergency Health and Safety Number: Chemtrec: 800-424-9300 (24 Hours)

Manufacturer:
Phillips 66 LubricantsP.O. Box 4428Houston, TX 77210

SDS Information:
Phone: 800-762-0942
Email: SDS@P66.com
URL: www.Phillips66.com

Customer Service:
U.S.: 1-800-822-6457 or International: +1-83-2486-3363
Technical Information: 1-877-445-9198

Section 2: Hazards Identification

Classified Hazards
This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Other Hazards
None Known

Label Elements

No classified hazards

SUPPLEMENTAL INFORMATION
2 percent of the mixture consists of ingredient(s) of unknown acute toxicity (inhalation)

Section 3: Composition / Information on Ingredients

Chemical Name	CASRN	Concentration[1]
Residual oils, petroleum, solvent-refined	64742-01-4	0 - 98
Distillates, petroleum, solvent-dewaxed heavy paraffinic	64742-65-0	0 - 97
Residual oils, petroleum, solvent-dewaxed	64742-62-7	0 - 96
Distillates, petroleum, hydrotreated heavy paraffinic	64742-54-7	0 - 75
Non-Hazardous Materials	VARIOUS	<5

[1] All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Section 4: First Aid Measures

Eye Contact: If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.

Skin Contact: Remove contaminated shoes and clothing and cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops and persists, seek medical attention.

Inhalation (Breathing): First aid is not normally required. If breathing difficulties develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. Seek immediate medical attention.

Ingestion (Swallowing): First aid is not normally required; however, if swallowed and symptoms develop, seek medical attention.

Most important symptoms and effects, both acute and delayed: Inhalation of oil mists or vapors generated at elevated temperatures may cause respiratory irritation. Accidental ingestion can result in minor irritation of the digestive tract, nausea and diarrhea. Dry skin and possible irritation with repeated or prolonged exposure.

Notes to Physician: Acute aspirations of large amounts of oil-laden material may produce a serious aspiration pneumonia. Patients who aspirate these oils should be followed for the development of long-term sequelae. Inhalation exposure to oil mists below current workplace exposure limits is unlikely to cause pulmonary abnormalities.

Section 5: Fire-Fighting Measures

NFPA 704 Hazard Class

Health: 0 **Flammability:** 1 **Instability:** 0

0 (Minimal)
1 (Slight)
2 (Moderate)
3 (Serious)
4 (Severe)

Extinguishing Media: Dry chemical, carbon dioxide, foam, or water spray is recommended. Water or foam may cause frothing of materials heated above 212°F / 100°C. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

Specific hazards arising from the chemical

Unusual Fire & Explosion Hazards: This material may burn, but will not ignite readily. If container is not properly cooled, it can rupture in the heat of a fire.

Hazardous Combustion Products: Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Oxides of sulfur, nitrogen or phosphorus may also be formed.

Special protective actions for firefighters: For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done safely. Avoid spreading burning liquid with water used for cooling purposes.

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: This material may burn, but will not ignite readily. Keep all sources of ignition away from spill/release. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

Environmental Precautions: Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Use water sparingly to minimize environmental contamination and reduce disposal requirements. If spill occurs on water notify appropriate authorities and advise shipping of any hazard. Spills into or upon navigable waters, the contiguous zone, or adjoining shorelines that cause a sheen or discoloration on the surface of the water, may require notification of the National Response Center (phone number 800-424-8802).

Methods and material for containment and cleaning up: Notify relevant authorities in accordance with all applicable regulations. Immediate cleanup of any spill is recommended. Dike far ahead of spill for later recovery or disposal. Absorb spill with inert material such as sand or vermiculite, and place in suitable container for disposal. If spilled on water remove with appropriate methods (e.g. skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken. See Section 13 for information on appropriate disposal.

Section 7: Handling and Storage

Precautions for safe handling: Keep away from flames and hot surfaces. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8). Spills will produce very slippery surfaces. Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. Do not wear contaminated clothing or shoes.

Conditions for safe storage: Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well-ventilated area away from heat and all sources of ignition. Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1, and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Section 8: Exposure Controls / Personal Protection

Chemical Name	ACGIH	OSHA	Other
Residual oils, petroleum, solvent-refined	TWA: 5mg/m³ STEL: 10mg/m³ as Oil Mist, if Generated	TWA: 5 mg/m³ as Oil Mist, if Generated	—
Distillates, petroleum, solvent-dewaxed heavy paraffinic	TWA: 5 mg/m³ STEL:10 mg/m³ as Oil Mist, if Generated	TWA: 5 mg/m³ (as Oil Mist, if Generated)	—
Residual oils, petroleum, solvent-dewaxed	TWA: 5 mg/m³ STEL:10 mg/m³ as Oil Mist, if Generated	TWA: 5 mg/m³ (as Oil Mist, if generated)	—
Distillates, petroleum, hydrotreated heavy paraffinic	TWA: 5 mg/m³ STEL:10 mg/m³ as Oil Mist, if Generated	TWA: 5 mg/m³ (as Oil Mist, if generated)	—

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Eye/Face Protection: The use of eye/face protection is not normally required; however, good industrial hygiene practice suggests the use of eye protection that meets or exceeds ANSI Z.87.1 whenever working with chemicals.

Skin/Hand Protection: The use of skin protection is not normally required; however, good industrial hygiene practice suggests the use of gloves or other appropriate skin protection whenever working with chemicals. Suggested protective materials: Nitrile

Respiratory Protection: Where there is potential for airborne exposure above the exposure limit a NIOSH certified air purifying respirator equipped with R or P95 filters may be used.

A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use. Air purifying respirators provide limited protection and cannot be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturer's instructions), in oxygen deficient (less than 19.5 percent oxygen) situations, or under conditions that are immediately dangerous to life and health (IDLH).

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

Section 9: Physical and Chemical Properties

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm). Data represent typical values and are not intended to be specifications.

Appearance: Amber, Transparent
Physical Form: Liquid
Odor: Petroleum
Odor Threshold: No data
pH: Not applicable
Vapor Density (air=1): >1
Upper Explosive Limits (vol % in air): No data
Lower Explosive Limits (vol % in air): No data
Evaporation Rate (nBuAc=1): No data
Particle Size: N/A
Percent Volatile: No data
Flammability (solid, gas): N/A

Flash Point: > 455 °F / > 235 °C
Test Method: Pensky-Martens Closed Cup (PMCC), ASTM D93, EPA 1010
Initial Boiling Point/Range: No data
Vapor Pressure: <1 mm Hg
Partition Coefficient (n-octanol/water) (Kow): No data
Melting/Freezing Point: No data
Auto-ignition Temperature: No data
Decomposition Temperature: No data
Specific Gravity (water=1): 0.876 - 0.895 @ 60°F (15.6°C)
Bulk Density: 7.29 - 7.46 lbs/gal
Viscosity: 8.7 - 30.5 cSt @ 100°C; 68 - 460 cSt @ 40°C
Solubility in Water: Negligible

Section 10: Stability and Reactivity

Reactivity: Not chemically reactive.

Chemical stability: Stable under normal ambient and anticipated conditions of use.

Possibility of hazardous reactions: Hazardous reactions not anticipated.

Conditions to avoid: Extended exposure to high temperatures can cause decomposition. Avoid all possible sources of ignition.

Incompatible materials: Avoid contact with strong oxidizing agents and strong reducing agents.

Hazardous decomposition products: Not anticipated under normal conditions of use.

Section 11: Toxicological Information

Information on Toxicological Effects of Substance/Mixture

Substance / Mixture

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	Unlikely to be harmful		>5 mg/L (mist, estimated); 2 percent of the mixture consists of ingredient(s) of unknown acute toxicity
Dermal	Unlikely to be harmful		> 2 g/kg (estimated)
Oral	Unlikely to be harmful		> 5 g/kg (estimated)

Aspiration Hazard: Not expected to be an aspiration hazard.

Skin Corrosion/Irritation: Not expected to be irritating. Repeated exposure may cause skin dryness or cracking.

Serious Eye Damage/Irritation: Not expected to be irritating.

Skin Sensitization: No information available on the mixture, however none of the components have been classified for skin sensitization (or are below the concentration threshold for classification).

Respiratory Sensitization: No information available.

Specific Target Organ Toxicity (Single Exposure): No information available on the mixture, however none of the components have been classified for target organ toxicity (or are below the concentration threshold for classification).

Specific Target Organ Toxicity (Repeated Exposure): No information available on the mixture, however none of the components have been classified for target organ toxicity (or are below the concentration threshold for classification).

Carcinogenicity: No information available on the mixture, however none of the components have been classified for carcinogenicity (or are below the concentration threshold for classification).

Germ Cell Mutagenicity: No information available on the mixture, however none of the components have been classified for germ cell mutagenicity (or are below the concentration threshold for classification).

Reproductive Toxicity: No information available on the mixture, however none of the components have been classified for reproductive toxicity (or are below the concentration threshold for classification).

Information on Toxicological Effects of Components

Lubricant Base Oil (Petroleum)

Carcinogenicity: The petroleum base oils contained in this product have been highly refined by a variety of processes including severe hydrocracking/hydroprocessing to reduce aromatics and improve performance characteristics. All of the oils meet the IP-346 criteria of less than 3 percent PAH's and are not considered carcinogens by NTP, IARC, or OSHA.

Section 12: Ecological Information

GHS Classification:
No classified hazards

Toxicity: All acute aquatic toxicity studies on samples of lubricant base oils show acute toxicity values greater than 100 mg/L for invertebrates, algae and fish. These tests were carried out on water accommodated fractions and the results are consistent with the predicted aquatic toxicity of these substances based on their hydrocarbon compositions.

Persistence and Degradability: The hydrocarbons in this material are not readily biodegradable, but since they can be degraded by microorganisms, they are regarded as inherently biodegradable.

Bioaccumulative Potential: Log Kow values measured for the hydrocarbon components of this material are greater than 5.3, and therefore regarded as having the potential to bioaccumulate. In practice, metabolic processes may reduce bioconcentration.

Mobility in Soil: Volatilization to air is not expected to be a significant fate process due to the low vapor pressure of this material. In water, base oils will float and spread over the surface at a rate dependent upon viscosity. There will be significant removal of hydrocarbons from the water by sediment adsorption. In soil and sediment, hydrocarbon components will show low mobility with adsorption to sediments being the predominant physical process. The main fate process is expected to be slow biodegradation of the hydrocarbon constituents in soil and sediment.

Other adverse effects: None anticipated.

Section 13: Disposal Considerations

The generator of a waste is always responsible for making proper hazardous waste determinations and needs to consider state and local requirements in addition to federal regulations.

This material, if discarded as produced, would not be a federally regulated RCRA "listed" hazardous waste and is not believed to exhibit characteristics of hazardous waste. See Sections 7 and 8 for information on handling, storage and personal protection and Section 9 for physical/chemical properties. It is possible that the material as produced contains constituents which are not required to be listed in the MSDS but could affect the hazardous waste determination. Additionally, use which results in chemical or physical change of this material could subject it to regulation as a hazardous waste.

This material under most intended uses would become "Used Oil" due to contamination by physical or chemical impurities. Whenever possible, Recycle used oil in accordance with applicable federal and state or local regulations. Container contents should be completely used and containers should be emptied prior to discard.

Section 14: Transport Information

U.S. Department of Transportation (DOT)
Shipping Description: ***Not regulated***
Note: ***If shipped by land in a packaging having a capacity of 3,500 gallons or more, the provisions of 49 CFR, Part 130 apply. (Contains oil)***

International Maritime Dangerous Goods (IMDG)
Shipping Description: ***Not regulated***
Note: ***U.S. DOT compliance requirements may apply. See 49 CFR 171.22, 23 & 25.***

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

International Civil Aviation Org. / International Air Transport Assoc. (ICAO/IATA)
UN/ID #: ***Not regulated***
Note: ***U.S. DOT compliance requirements may apply. See 49 CFR 171.22, 23 & 24.***

	LTD. QTY	Passenger Aircraft	Cargo Aircraft Only
Packaging Instruction #:	---	---	---
Max. Net Qty. Per Package:	---	---	---

Section 15: Regulatory Information

CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (In pounds):
This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

CERCLA/SARA - Section 311/312 (Title III Hazard Categories)

Acute Health Hazard:	No
Chronic Health Hazard:	No
Fire Hazard:	No
Pressure Hazard:	No
Reactive Hazard:	No

CERCLA/SARA - Section 313 and 40 CFR 372:
This material does not contain any chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372.

EPA (CERCLA) Reportable Quantity (in pounds):
This material does not contain any chemicals with CERCLA Reportable Quantities.

California Proposition 65:
Warning: This material may contain detectable quantities of the following chemicals, known to the State of California to cause cancer, birth defects or other reproductive harm, and which may be subject to the warning requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Chemical Name	Type of Toxicity
Cumene	Cancer

International Hazard Classification

Canada:
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the Regulations.

WHMIS Hazard Class:
none

National Chemical Inventories
All components are either listed on the US TSCA Inventory, or are not regulated under TSCA.

All components are either on the DSL, or are exempt from DSL listing requirements.

U.S. Export Control Classification Number: EAR99

Section 16: Other Information

Date of Issue:	Previous Issue Date:	SDS Number:	Status:
22-Nov-2013	05-Dec-2012	815913	FINAL

Revised Sections or Basis for Revision:
Format change; Product Name / Synonyms (Section 1); Composition (Section 3); Physical Properties (Section 9); Toxicological (Section 11); Regulatory information (Section 15)

Guide to Abbreviations:
ACGIH = American Conference of Governmental Industrial Hygienists; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; GHS = Globally Harmonized System; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)

Disclaimer of Expressed and implied Warranties:
The information presented in this Safety Data Sheet is based on data believed to be accurate as of the date this Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

Material Safety Data Sheet
Omni Specialty Packaging
For Compliance with OSHA 29 CFR 1910.1200 and ANSI Z400.1-1998

1. Product and Company Identification

Product Name PURE GUARD AW HYDRAULIC OILS ALL GRADES 150	MSDS Code Number
Trade Name & Synonyms	Date of Last Revision 01/15/2009
Chemical Name	Manufacturer Omni Specialty Packaging
C.A.S. Number	Address 10399 Hwy. 1 Shreveport La. 71115
Grades or Minor Variant Identities	Information Telephone Number (318) 524-1100
	Foreign Emergency Telephone Number
Product Use (for Canada)	Emergency Telephone Number (318) 524-1100

2. Composition/Information on Ingredients

Hazardous Components	C.A.S Number	Exposure Limits Oil Mist	%
Heavy Hydrotreated Naphthenic Distillates (Petroleum)	64742-52-5	5MG/m3	0-100
Highly-Refined Petroleum Lubricant Oils	Mixture	5MG/M3	65-100
Severly Hydrotreated Heavy Naphthenic Petroleum Oil	Mixture	5MG/M3	0-70
Additive Mixture	N/A	5MG/M3	0-5
OSHA Regulatory Status 29 CFR 1910.1200.			

3. Hazards Identification

Emergency Overview

This product is considered not hazardous under 29 CFR 1910.1200 (Hazard Communication).

Routes of Exposure	Signs and Symptoms	Single, Repeated, or Lifetime Exposures	Severity (Mild, Moderate, Severe)	Acute and Chronic Health Effect(s)	Target Organ(s)
Eye	Eye contact may result in slight irritation and redness.				
Skin	Minimally irritating upon direct contact.	May cause irritation/dermatitis.			
Inhalation	Low hazard at standard temperatures and pressures. Inhalation of oil mist or fumes can cause irritation of the nose, throat and upper respiratory tract				
Ingestion	Do not ingest. May cause nausea, vomiting/diarrhea.				
Other	On rare occasions, prolonged and repeated exposure to oil mist poses a risk of pulmonary disease such as chronic lung inflammation. This condition is usually asymptomatic as a result of repeated small aspirations.				

Medical Conditions Aggravated by Exposure

Personnel with pre-existing skin disorders should avoid contact with this product.

4. First Aid Measures

Routes of Exposure	First Aid Instructions	Immediate Medical Attention	Delayed
Eye	Flush with large amount of water for 15 minutes. Get medical attention if eye irritation develops or persists.	If material is hot, treat for thermal burns and take victim to the hospital immediately.	
Skin	Wash with soap and water. Remove contaminated clothes and wash before reuse. Get medical attention if skin discolor develops.		
Inhalation	This material is not expected to present an inhalation exposure at ambient conditions		
Ingestion	Do not induce vomiting. Get immediate medical attention or advice.		
Other	Not available		

Note to Physicians (Treatment, Testing, and Monitoring)
Not available

5. Fire Fighting Measures

Flashpoint Method:	°F	Flammable (Explosive) Limits in Air LEL	UEL	Autoignition Temperature	°F
COC Min.	310	Not determined	Not determined	(> 353 °C)	667

Flame Propagation or Burning Rate (for solids)	Properties Contributing to Fire Intensity	Flammability Classification
Not Available	Not Determined	Not Available

Hazard Rating

Health	0
Fire	1
Reactivity	0
PPE	B

Extinguishing Media	Extinguishing Media to Avoid	Reactions to Extinguishing Media
Water fog, foam, CO_2, dry chemical	Not Available	Not Available

Protection and Procedures for Firefighters
Wear positive pressure self-contained breathing apparatus (SCUBA). Use water to cool containers exposed to flames. Structural firefighters' protective clothing will only provide limited protection.

Unusual Fire and Explosion Hazards
Mist or sprays may be flammable below the product normal flash point.

6. Accidental Release Measures

Spill/Leak Clean-up Procedures and Equipment
Observing health hazards described above, ventilate area. Dike to contain spill. Pick up free liquid for recycle and/or disposal. Residual liquid and/or solid can be absorbed on inert material. Keep from sewers and natural water.

Evacuation Procedures
Large spill
* Consider initial downwind evacuate for at least 300 meters (1000 feet).
Fire
* If tank, rail car or tank car is involved in a fire, isolate for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions.

Special Instructions
When using this material, do not eat, drink, or smoke. Wash thoroughly after handling. Keep away from animals and children.

Reporting Requirements
Spills that enter a water body must be reported immediately to the USEPA's National Response Center at (800)546-2972. Check with your local and state regulators regarding their reporting requirements.

7. Handling and Storage

Handling Practices and Warnings
Do not pressure, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode. See NFPA 30 and OSHA 1910.106 – flammable and combustible liquids.

Storage Practices and Warnings
Store away from heat, sparks, open flame, or strong oxidizing agents in closed and properly labeled containers. Empty containers retain product residue (liquid, and/or vapor) and can be dangerous.

8. Exposure Control/Personal Protection

Other Engineering controls	Ventilation	
N/A	Additional area ventilation or local exhaust may be required to maintain air concentrations below recommended limits.	
Routes of Entry:	Personal Protective Equipment (PPE) for Normal Use:	PPE for Emergencies
Eye/Face	Safety glasses or face shield where splashing is possible.	Full face shield
Skin	As needed to prevent repeated skin contact. Solvent resistant gloves should be used if needed.	
Inhalation	Not normally needed.	Respirator

9. Physical and Chemical Properties

Appearance			Odor
Amber Liquid			Petroleum odor
Normal Physical State:		Boiling Point	>500 °F
X Liquid	☐ Gas	Melting Point	N/A °F
☐ Solid	☐ (Other)	Freezing Point	<-21 °C

Specific Gravity or Density (H_2O = 1)	Solubility in Water	pH
0.87	Negligible	N/A
Vapor Pressure (mm Hg.)	**Vapor Density (AIR = 1)**	**Evaporation Rate (Butyl Acetate = 1)**
N/A	Not Determined	N/A

Other
N/A

10. Stability and Reactivity

Incompatibility (Materials to Avoid)
Open flame, and strong oxidizing agents.

Hazardous Products Produced During Decomposition
Decomposition and combustion products may include hydrogen sulfide, alkyl mercaptans, sulfides, oxides or sulfur, oxides of : phosphorous, calcium and zinc; aldehydes, carbon monoxide and carbon dioxide.

Hazardous Polymerization?	☐ May Occur	X Will Not Occur	Conditions to Avoid
Stability? X Stable	☐ Unstable		Conditions to Avoid Sources of Ignition

11. Toxicological Information

Toxicity Data, Epidemiology Studies, Carcinogenicity, Neurological Effects, Genetic Effects, Reproductive Effects, or Structure Activity Data

Acute Toxicity: Test on similar materials show a low order of acute oral and dermal toxicity.
Acute Oral Effects: Test on similar materials indicates low order of acute toxicity.
Acute Inhalation Effects: Low acute toxicity expected on inhalation.
Skin Effects: Practically non-toxic if absorbed. Other similar highly refined products have not shown skin tumors in mouse skin painting studies.
Eye Irritation: Minimal irritation on contact. Eye irritation slightly or practically non-irritating base on similar products.
Carcinogenicity:
Skin: Not considered a potential carcinogen base on IP346 DMSO of less than 3.0 wt%
Genotoxicity: This product is considered non-mutagenic and has negative potential for tumor development based on from Modified Ames Assay, with Mutagenic Index of less than 1.0.

12. Ecological Information

Toxicity, Environmental Fate, Physical/Chemical Data, or Other Data Supporting Environmental Hazard Statements

If applied to leaves, this product may kill grasses and small plants by interfering with transpiration and respiration. This product is not toxic to fish but may coat gill structures resulting in suffocation if spilled in shallow, running water. Product may be moderately toxic to amphibians by preventing dermal respiration. This product may cause gastrointestinal distress to birds and mammals through ingestion during pelage grooming.

13. Disposal Considerations

Regulations

Dispose in accordance with all local, state, and federal regulations. Keep this product out of sewers and waterways.

Note: State or local requirements may differ from federal regulations. Processing or using this product may make the information here inappropriate. Waste generators are responsible for waste classification, transport, and disposal.

14. Transport Information

Regulated for shipping? ☐ Yes X No	Proper Shipping Name N/A	Packing Group N/A
Do changes in quantity, packaging, or shipment method change product qualification? ☐ Yes x No	Hazard Class N/A	Identification Number N/A
Other N/A		

15. Regulatory Information

Federal Regulations (OSHA, TSCA, CERCLA, FIFRA, EPCRA, CAA, CWA, SDWA, CPSA, DEA, FDA/USDA, etc.)

State Regulations

U.S. Federal Regulatory Information:

CERCLA/SARA

302/303/304 Categories: Extremely Hazardous Substances (40 CFR 355 Appendix A)		No
311/312 Categories: (40 CFR 370)	Immediate (Acute) Health Effects	No
	Delayed (Chronic) Health Effects	No
	Fire Hazard	No
	Sudden Release of Pressure Hazard	No
	Reactivity Hazard	No
313 Categories:	Toxic Chemicals (40 CFR 372)	No
Clean Air Act:	Hazardous Air Pollutants (HAPS)	No

Clean Water Act: If spilled into navigable waters it is reportable to National Response Center, 800-424-8802 (40 CFR 116; 401.15) Reportable Quantity = Oil Sheen present on navigable water surface

OSHA (29 CFR 1910): This product is not hazardous under Hazard Communication Standard 29 CFR 1910.1200

RCRA (40 CFR 261.133) This product does not meet hazardous waste criteria.

EPA/TSCA Inventory: The components of this product are listed on the EPA/TSCA inventory of chemicals. CAS No. 64742-52-5

State Regulations:

California Prop 65	No Proposition 65 chemicals exist in this product, no labeling required.
Florida	No listed ingredients are present
Massachusetts RTK	No listed ingredients are present
Minnesota RTK	No listed ingredients are present
New Jersey RTK	Lists petroleum oil, but this product does not contain hazardous ingredients.
Pennsylvania RTK	Lists petroleum oil, but this product does not contain hazardous ingredients greater than 3%.
Illinois DOL TSL	No listed ingredients are present

Other Regulations:

WHMIS (Canada) Not listed on the Canadian Controlled Product Ingredient Disclosure and is compliant with Controlled Products Regulation

CONEG Metals: Since cadmium, chromium, lead and mercury are not detectable and it does not exceed 100 ppm total in this product, it is compliant with CONEG Metals regulation.

EEC (Europe): This product is not known to be a dangerous good internationally.
No known R-Phrases or S-Phrases
Hazard Label None
Danger Symbol None

International Regulations

N/A

Other

Not all ingredients will be present in some finished products.

16. Other Information

Label Text, Hazard Rating System, Key Legend, or Other

Abbreviations

ACGIH(American Conference of Governmental Industrial Hygienists); ANSI(American National Standards Institute); CAS(Chemical Abstract Service); CERCLA(Comprehensive Environmental Response, Compensation, & Liability Act); CFR(Code of Federal Regulations); CHIP (Chemicals Hazard Information & Packaging for Supply); CONCAWE (European Organization for Environment, Health & Safety); CPR(Controlled Products Regulations); DOL (Department of Labor); EED(European Economic Community Directives); EINECS (European Inventory of Existing Commercial Chemical Substances); EL50 (Effective loading rate required to immobilize 50% invertebrate species); ELINCS(European List of New Chemical Substances); EPA (Environmental Protection Agency); EPCRA(Emergency Planning & Community Right-To-Know Act of 1986); EU(European Union); FDA(Food & Drug Administration-USA); GHS (Global Harmonization System); HCS (Hazard Communication Standard); IARC(International Agency for Research on Cancer); ILO(International Labor Organization); LC50(Lethal Concentration 50% test organisms); LD50(Lethal Dose 50% test organisms); LVP-VOC(Low Vapor Pressure Volatile Organic Compound); MSDS(Material Safety Data Sheet); MSHA(Mine Safety & Health Administration); NIOSH(National Institute of Occupational Safety & Health);NTP(National Toxicology Program); OSHA(Occupational Safety & Health Administration); PEL(Permissible Exposure Limit); Prop 65(California Proposition 65); PMCC(Pensky Martin Closed Cup); RCRA(Resource Conservation & Recovery Act); RTK(Right-To-Know); R-Phrases(EU Risk Phrases; S-Phrases (EU Safety Phrases); SARA(Superfund Amendments & Reauthorization Act); TSCA (Toxic Substances Control Act); TSL (Toxic Substance List); TLV(Threshold Limit Value); WHMIS(Workplace Hazardous Materials Information System-Canada); IrL50 (Inhibitory loading rate required to reduce algal growth rate by 50%; IbL50 (Inhibitory loading rate required to reduce area under growth curve or biomass by 50%); ppm (parts per million); mg/m3 (milligrams per cubic meter); N(no); Y (yes)

NFPA Hazard Rating – Health **0 Slight**
-Fire **1 Slight**
Reactivity **0 Least**

Prepared By: Juan Parker **Phone:** (318)524-1100

This MSDS complies with OSHA Hazard Communication Standard (HCS) 29 CFR 1910.1200 and conforms to ANSI Z 400.1 16-Section Format.

Disclaimer: Omni Specialty Packaging believes this information is accurate but not all-inclusive in all circumstances. It is the responsibility of the user to determine suitability of the material for their purposes. No warranty, expressed or implied, is given.

NOTE: OSHA's Hazard Communication Standard (29 CFR 1910.1200) does not require the information requested in Sections 11, 12, 13, 4, 15, and 16 for MSDSs. If your company chooses not to fill in these sections, you may wish to enter something (like N/R for "not regulated" or N/A for "not applicable") to indicate that the field is purposely being left blank.

Safety Data Sheet

According to OSHA HCS 2012 (29 CFR 1910.1200)

Section 1: Identification

Product Identifier: Extra Duty Gear Oil

Other means of identification:
Extra Duty Gear Oil 68
Extra Duty Gear Oil 100
Extra Duty Gear Oil 150
Extra Duty Gear Oil 220
Extra Duty Gear Oil 320
Extra Duty Gear Oil 460

SDS Number: 815913
Intended Use: Industrial Gear Oil
Uses Advised Against: All others
Emergency Health and Safety Number: Chemtrec: 800-424-9300 (24 Hours)

Manufacturer:
Phillips 66 LubricantsP.O. Box 4428Houston, TX 77210

SDS Information:
Phone: 800-762-0942
Email: SDS@P66.com
URL: www.Phillips66.com

Customer Service:
U.S.: 1-800-822-6457 or International: +1-83-2486-3363
Technical Information: 1-877-445-9198

Section 2: Hazards Identification

Classified Hazards
This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Other Hazards
None Known

Label Elements

No classified hazards

SUPPLEMENTAL INFORMATION
2 percent of the mixture consists of ingredient(s) of unknown acute toxicity (inhalation)

Section 3: Composition / Information on Ingredients

Chemical Name	CASRN	Concentration[1]
Residual oils, petroleum, solvent-refined	64742-01-4	0 - 98
Distillates, petroleum, solvent-dewaxed heavy paraffinic	64742-65-0	0 - 97
Residual oils, petroleum, solvent-dewaxed	64742-62-7	0 - 96
Distillates, petroleum, hydrotreated heavy paraffinic	64742-54-7	0 - 75
Non-Hazardous Materials	VARIOUS	<5

[1] All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Section 4: First Aid Measures

Eye Contact: If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.

Skin Contact: Remove contaminated shoes and clothing and cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops and persists, seek medical attention.

Inhalation (Breathing): First aid is not normally required. If breathing difficulties develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. Seek immediate medical attention.

Ingestion (Swallowing): First aid is not normally required; however, if swallowed and symptoms develop, seek medical attention.

Most important symptoms and effects, both acute and delayed: Inhalation of oil mists or vapors generated at elevated temperatures may cause respiratory irritation. Accidental ingestion can result in minor irritation of the digestive tract, nausea and diarrhea. Dry skin and possible irritation with repeated or prolonged exposure.

Notes to Physician: Acute aspirations of large amounts of oil-laden material may produce a serious aspiration pneumonia. Patients who aspirate these oils should be followed for the development of long-term sequelae. Inhalation exposure to oil mists below current workplace exposure limits is unlikely to cause pulmonary abnormalities.

Section 5: Fire-Fighting Measures

NFPA 704 Hazard Class

Health: 0 **Flammability:** 1 **Instability:** 0

0 (Minimal)
1 (Slight)
2 (Moderate)
3 (Serious)
4 (Severe)

Extinguishing Media: Dry chemical, carbon dioxide, foam, or water spray is recommended. Water or foam may cause frothing of materials heated above 212°F / 100°C. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

Specific hazards arising from the chemical

Unusual Fire & Explosion Hazards: This material may burn, but will not ignite readily. If container is not properly cooled, it can rupture in the heat of a fire.

Hazardous Combustion Products: Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Oxides of sulfur, nitrogen or phosphorus may also be formed.

Special protective actions for firefighters: For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done safely. Avoid spreading burning liquid with water used for cooling purposes.

See Section 9 for Flammable Properties Including Flash Point and Flammable (Explosive) Limits

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: This material may burn, but will not ignite readily. Keep all sources of ignition away from spill/release. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

Environmental Precautions: Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Use water sparingly to minimize environmental contamination and reduce disposal requirements. If spill occurs on water notify appropriate authorities and advise shipping of any hazard. Spills into or upon navigable waters, the contiguous zone, or adjoining shorelines that cause a sheen or discoloration on the surface of the water, may require notification of the National Response Center (phone number 800-424-8802).

Methods and material for containment and cleaning up: Notify relevant authorities in accordance with all applicable regulations. Immediate cleanup of any spill is recommended. Dike far ahead of spill for later recovery or disposal. Absorb spill with inert material such as sand or vermiculite, and place in suitable container for disposal. If spilled on water remove with appropriate methods (e.g. skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken. See Section 13 for information on appropriate disposal.

Section 7: Handling and Storage

Precautions for safe handling: Keep away from flames and hot surfaces. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8). Spills will produce very slippery surfaces. Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. Do not wear contaminated clothing or shoes.

Conditions for safe storage: Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well-ventilated area away from heat and all sources of ignition. Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1, and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Section 8: Exposure Controls / Personal Protection

Chemical Name	ACGIH	OSHA	Other
Residual oils, petroleum, solvent-refined	TWA: 5mg/m³ STEL: 10mg/m³ as Oil Mist, if Generated	TWA: 5 mg/m³ as Oil Mist, if Generated	---
Distillates, petroleum, solvent-dewaxed heavy paraffinic	TWA: 5 mg/m³ STEL:10 mg/m³ as Oil Mist, if Generated	TWA: 5 mg/m³ (as Oil Mist, if Generated)	—
Residual oils, petroleum, solvent-dewaxed	TWA: 5 mg/m³ STEL:10 mg/m³ as Oil Mist, if Generated	TWA: 5 mg/m³ (as Oil Mist, if generated)	—
Distillates, petroleum, hydrotreated heavy paraffinic	TWA: 5 mg/m³ STEL:10 mg/m³ as Oil Mist, if Generated	TWA: 5 mg/m³ (as Oil Mist, if generated)	—

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Eye/Face Protection: The use of eye/face protection is not normally required; however, good industrial hygiene practice suggests the use of eye protection that meets or exceeds ANSI Z87.1 whenever working with chemicals.

Skin/Hand Protection: The use of skin protection is not normally required; however, good industrial hygiene practice suggests the use of gloves or other appropriate skin protection whenever working with chemicals. Suggested protective materials: Nitrile

Respiratory Protection: Where there is potential for airborne exposure above the exposure limit a NIOSH certified air purifying respirator equipped with R or P95 filters may be used.

A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use. Air purifying respirators provide limited protection and cannot be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturer's instructions), in oxygen deficient (less than 19.5 percent oxygen) situations, or under conditions that are immediately dangerous to life and health (IDLH).

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

Section 9: Physical and Chemical Properties

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm). Data represent typical values and are not intended to be specifications.

Appearance: Amber, Transparent
Physical Form: Liquid
Odor: Petroleum
Odor Threshold: No data
pH: Not applicable
Vapor Density (air=1): >1
Upper Explosive Limits (vol % in air): No data
Lower Explosive Limits (vol % in air): No data
Evaporation Rate (nBuAc=1): No data
Particle Size: N/A
Percent Volatile: No data
Flammability (solid, gas): N/A

Flash Point: > 455 °F / > 235 °C
Test Method: Pensky-Martens Closed Cup (PMCC), ASTM D93, EPA 1010
Initial Boiling Point/Range: No data
Vapor Pressure: <1 mm Hg
Partition Coefficient (n-octanol/water) (Kow): No data
Melting/Freezing Point: No data
Auto-ignition Temperature: No data
Decomposition Temperature: No data
Specific Gravity (water=1): 0.876 - 0.895 @ 60°F (15.6°C)
Bulk Density: 7.29 - 7.46 lbs/gal
Viscosity: 8.7 - 30.5 cSt @ 100°C; 68 - 460 cSt @ 40°C
Solubility in Water: Negligible

Section 10: Stability and Reactivity

Reactivity: Not chemically reactive.

Chemical stability: Stable under normal ambient and anticipated conditions of use.

Possibility of hazardous reactions: Hazardous reactions not anticipated.

Conditions to avoid: Extended exposure to high temperatures can cause decomposition. Avoid all possible sources of ignition.

Incompatible materials: Avoid contact with strong oxidizing agents and strong reducing agents.

Hazardous decomposition products: Not anticipated under normal conditions of use.

Section 11: Toxicological Information

Information on Toxicological Effects of Substance/Mixture

Substance / Mixture

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	Unlikely to be harmful		>5 mg/L (mist, estimated); 2 percent of the mixture consists of ingredient(s) of unknown acute toxicity
Dermal	Unlikely to be harmful		> 2 g/kg (estimated)
Oral	Unlikely to be harmful		> 5 g/kg (estimated)

Aspiration Hazard: Not expected to be an aspiration hazard.

Skin Corrosion/Irritation: Not expected to be irritating. Repeated exposure may cause skin dryness or cracking.

Serious Eye Damage/Irritation: Not expected to be irritating.

Skin Sensitization: No information available on the mixture, however none of the components have been classified for skin sensitization (or are below the concentration threshold for classification).

Respiratory Sensitization: No information available.

Specific Target Organ Toxicity (Single Exposure): No information available on the mixture, however none of the components have been classified for target organ toxicity (or are below the concentration threshold for classification).

Specific Target Organ Toxicity (Repeated Exposure): No information available on the mixture, however none of the components have been classified for target organ toxicity (or are below the concentration threshold for classification).

Carcinogenicity: No information available on the mixture, however none of the components have been classified for carcinogenicity (or are below the concentration threshold for classification).

Germ Cell Mutagenicity: No information available on the mixture, however none of the components have been classified for germ cell mutagenicity (or are below the concentration threshold for classification).

Reproductive Toxicity: No information available on the mixture, however none of the components have been classified for reproductive toxicity (or are below the concentration threshold for classification).

Information on Toxicological Effects of Components

Lubricant Base Oil (Petroleum)

Carcinogenicity: The petroleum base oils contained in this product have been highly refined by a variety of processes including severe hydrocracking/hydroprocessing to reduce aromatics and improve performance characteristics. All of the oils meet the IP-346 criteria of less than 3 percent PAH's and are not considered carcinogens by NTP, IARC, or OSHA.

Section 12: Ecological Information

GHS Classification:
No classified hazards

Toxicity: All acute aquatic toxicity studies on samples of lubricant base oils show acute toxicity values greater than 100 mg/L for invertebrates, algae and fish. These tests were carried out on water accommodated fractions and the results are consistent with the predicted aquatic toxicity of these substances based on their hydrocarbon compositions.

Persistence and Degradability: The hydrocarbons in this material are not readily biodegradable, but since they can be degraded by microorganisms, they are regarded as inherently biodegradable.

Bioaccumulative Potential: Log Kow values measured for the hydrocarbon components of this material are greater than 5.3, and therefore regarded as having the potential to bioaccumulate. In practice, metabolic processes may reduce bioconcentration.

Mobility in Soil: Volatilization to air is not expected to be a significant fate process due to the low vapor pressure of this material. In water, base oils will float and spread over the surface at a rate dependent upon viscosity. There will be significant removal of hydrocarbons from the water by sediment adsorption. In soil and sediment, hydrocarbon components will show low mobility with adsorption to sediments being the predominant physical process. The main fate process is expected to be slow biodegradation of the hydrocarbon constituents in soil and sediment.

Other adverse effects: None anticipated.

Section 13: Disposal Considerations

The generator of a waste is always responsible for making proper hazardous waste determinations and needs to consider state and local requirements in addition to federal regulations.

This material, if discarded as produced, would not be a federally regulated RCRA "listed" hazardous waste and is not believed to exhibit characteristics of hazardous waste. See Sections 7 and 8 for information on handling, storage and personal protection and Section 9 for physical/chemical properties. It is possible that the material as produced contains constituents which are not required to be listed in the MSDS but could affect the hazardous waste determination. Additionally, use which results in chemical or physical change of this material could subject it to regulation as a hazardous waste.

This material under most intended uses would become "Used Oil" due to contamination by physical or chemical impurities. Whenever possible, Recycle used oil in accordance with applicable federal and state or local regulations. Container contents should be completely used and containers should be emptied prior to discard.

Section 14: Transport Information

U.S. Department of Transportation (DOT)

Shipping Description: ***Not regulated***
Note: ***If shipped by land in a packaging having a capacity of 3,500 gallons or more, the provisions of 49 CFR, Part 130 apply. (Contains oil)***

International Maritime Dangerous Goods (IMDG)

Shipping Description: ***Not regulated***
Note: ***U.S. DOT compliance requirements may apply. See 49 CFR 171.22, 23 & 25.***

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

International Civil Aviation Org. / International Air Transport Assoc. (ICAO/IATA)

UN/ID #: ***Not regulated***
Note: ***U.S. DOT compliance requirements may apply. See 49 CFR 171.22, 23 & 24.***

	LTD. QTY	Passenger Aircraft	Cargo Aircraft Only
Packaging Instruction #:	—	—	—
Max. Net Qty. Per Package:	—	—	—

Section 15: Regulatory Information

CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds):
This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

CERCLA/SARA - Section 311/312 (Title III Hazard Categories)

Acute Health Hazard:	No
Chronic Health Hazard:	No
Fire Hazard:	No
Pressure Hazard:	No
Reactive Hazard:	No

CERCLA/SARA - Section 313 and 40 CFR 372:
This material does not contain any chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372.

EPA (CERCLA) Reportable Quantity (in pounds):
This material does not contain any chemicals with CERCLA Reportable Quantities.

California Proposition 65:
Warning: This material may contain detectable quantities of the following chemicals, known to the State of California to cause cancer, birth defects or other reproductive harm, and which may be subject to the warning requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Chemical Name	Type of Toxicity
Cumene	Cancer

International Hazard Classification

Canada:
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the Regulations.

WHMIS Hazard Class:
none

National Chemical Inventories
All components are either listed on the US TSCA Inventory, or are not regulated under TSCA.

All components are either on the DSL, or are exempt from DSL listing requirements.

U.S. Export Control Classification Number: EAR99

Section 16: Other Information

Date of Issue:	Previous Issue Date:	SDS Number:	Status:
22-Nov-2013	05-Dec-2012	815913	FINAL

Revised Sections or Basis for Revision:
Format change; Product Name / Synonyms (Section 1); Composition (Section 3); Physical Properties (Section 9); Toxicological (Section 11); Regulatory information (Section 15)

Guide to Abbreviations:
ACGIH = American Conference of Governmental Industrial Hygienists; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; GHS = Globally Harmonized System; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)

Disclaimer of Expressed and implied Warranties:
The information presented in this Safety Data Sheet is based on data believed to be accurate as of the date this Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

Material Safety Data Sheet
Omni Specialty Packaging
For Compliance with OSHA 29 CFR 1910.1200 and ANSI Z400.1-1998

1. Product and Company Identification

Product Name PURE GUARD AW HYDRAULIC OILS ALL GRADES / 50	MSDS Code Number
Trade Name & Synonyms	Date of Last Revision 01/15/2009
Chemical Name	Manufacturer Omni Specialty Packaging
C.A.S. Number	Address 10399 Hwy. 1 Shreveport La. 71115
Grades or Minor Variant identities	Information Telephone Number (318) 524-1100
	Foreign Emergency Telephone Number
Product Use (for Canada)	Emergency Telephone Number (318) 524-1100

2. Composition/Information on Ingredients

Hazardous Components	C.A.S Number	Exposure Limits Oil Mist	%
Heavy Hydrotreated Naphthenic Distillates (Petroleum)	64742-52-5	5MG/m3	0-100
Highly-Refined Petroleum Lubricant Oils	Mixture	5MG/M3	65-100
Severly Hydrotreated Heavy Naphthenic Petroleum Oil	Mixture	5MG/M3	0-70
Additive Mixture	N/A	5MG/M3	0-5
OSHA Regulatory Status 29 CFR 1910.1200.			

3. Hazards Identification

Emergency Overview

This product is considered not hazardous under 29 CFR 1910.1200 (Hazard Communication).

Routes of Exposure	Signs and Symptoms	Single, Repeated, or Lifetime Exposures	Severity (Mild, Moderate, Severe)	Acute and Chronic Health Effect(s)	Target Organ(s)
Eye	Eye contact may result in slight irritation and redness.				
Skin	Minimally irritating upon direct contact.	May cause irritation/dermatitis.			
Inhalation	Low hazard at standard temperatures and pressures. Inhalation of oil mist or fumes can cause irritation of the nose, throat and upper respiratory tract				
Ingestion	Do not ingest. May cause nausea, vomiting/diarrhea.				
Other	On rare occasions, prolonged and repeated exposure to oil mist poses a risk of pulmonary disease such as chronic lung inflammation. This condition is usually asymptomatic as a result of repeated small aspirations.				

Medical Conditions Aggravated by Exposure

Personnel with pre-existing skin disorders should avoid contact with this product.

4. First Aid Measures

Routes of Exposure	First Aid Instructions	Immediate Medical Attention	Delayed
Eye	Flush with large amount of water for 15 minutes. Get medical attention if eye irritation develops or persists.	If material is hot, treat for thermal burns and take victim to the hospital immediately.	
Skin	Wash with soap and water. Remove contaminated clothes and wash before reuse. Get medical attention if skin discolor develops.		
Inhalation	This material is not expected to present an inhalation exposure at ambient conditions		
Ingestion	Do not induce vomiting. Get immediate medical attention or advice.		
Other	Not available		

Note to Physicians (Treatment, Testing, and Monitoring)

Not available

5. Fire Fighting Measures

Flashpoint Method:	°F	Flammable (Explosive) Limits in Air LEL	UEL	Autoignition Temperature	°F
COC Min.	310	Not determined	Not determined	(> 353 °C)	667

Hazard Rating

Health	0
Fire	1
Reactivity	0
PPE	B

Flame Propagation or Burning Rate (for solids)	Properties Contributing to Fire Intensity	Flammability Classification
Not Available	Not Determined	Not Available

Extinguishing Media	Extinguishing Media to Avoid	Reactions to Extinguishing Media
Water fog, foam, CO_2, dry chemical	Not Available	Not Available

Protection and Procedures for Firefighters

Wear positive pressure self-contained breathing apparatus (SCUBA). Use water to cool containers exposed to flames. Structural firefighters' protective clothing will only provide limited protection.

Unusual Fire and Explosion Hazards

Mist or sprays may be flammable below the product normal flash point.

6. Accidental Release Measures

Spill/Leak Clean-up Procedures and Equipment

Observing health hazards described above, ventilate area. Dike to contain spill. Pick up free liquid for recycle and/or disposal. Residual liquid and/or solid can be absorbed on inert material. Keep from sewers and natural water.

Evacuation Procedures

Large spill

* Consider initial downwind evacuate for at least 300 meters (1000 feet).

Fire

* If tank, rail car or tank car is involved in a fire, isolate for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions.

Special Instructions

When using this material, do not eat, drink, or smoke. Wash thoroughly after handling. Keep away from animals and children.

Reporting Requirements

Spills that enter a water body must be reported immediately to the USEPA's National Response Center at (800)546-2972. Check with your local and state regulators regarding their reporting requirements.

7. Handling and Storage

Handling Practices and Warnings

Do not pressure, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode. See NFPA 30 and OSHA 1910.106– flammable and combustible liquids.

Storage Practices and Warnings

Store away from heat, sparks, open flame, or strong oxidizing agents in closed and properly labeled containers. Empty containers retain product residue (liquid, and/or vapor) and can be dangerous.

8. Exposure Control/Personal Protection

Other Engineering controls	Ventilation	
N/A	Additional area ventilation or local exhaust may be required to maintain air concentrations below recommended limits.	
Routes of Entry:	Personal Protective Equipment (PPE) for Normal Use:	PPE for Emergencies
Eye/Face	Safety glasses or face shield where splashing is possible.	Full face shield
Skin	As needed to prevent repeated skin contact. Solvent resistant gloves should be used if needed.	
Inhalation	Not normally needed.	Respirator

9. Physical and Chemical Properties

Appearance			Odor
Amber Liquid			Petroleum odor
Normal Physical State:		Boiling Point	>500 °F
X Liquid	☐ Gas	Melting Point	N/A °F
☐ Solid	☐ (Other)	Freezing Point	<-21 °C

Specific Gravity or Density (H_2O = 1)	Solubility in Water	pH
0.87	Negligible	N/A
Vapor Pressure (mm Hg.)	**Vapor Density (AIR = 1)**	**Evaporation Rate (Butyl Acetate = 1)**
N/A	Not Determined	N/A

Other
N/A

10. Stability and Reactivity

Incompatibility (Materials to Avoid)
Open flame, and strong oxidizing agents.

Hazardous Products Produced During Decomposition
Decomposition and combustion products may include hydrogen sulfide, alkyl mercaptans, sulfides, oxides or sulfur, oxides of : phosphorous, calcium and zinc; aldehydes, carbon monoxide and carbon dioxide.

Hazardous Polymerization?	☐ May Occur	X Will Not Occur	Conditions to Avoid	
Stability?	X Stable	☐ Unstable	Conditions to Avoid	Sources of ignition

11. Toxicological Information

Toxicity Data, Epidemiology Studies, Carcinogenicity, Neurological Effects, Genetic Effects, Reproductive Effects, or Structure Activity Data

Acute Toxicity: Test on similar materials show a low order of acute oral and dermal toxicity.
Acute Oral Effects: Test on similar materials indicates low order of acute toxicity.
Acute Inhalation Effects: Low acute toxicity expected on inhalation.
Skin Effects: Practically non-toxic if absorbed. Other similar highly refined products have not shown skin tumors in mouse skin painting studies.
Eye Irritation: Minimal irritation on contact. Eye irritation slightly or practically non-irritating base on similar products.
Carcinogenicity:
Skin: Not considered a potential carcinogen base on IP346 DMSO of less than 3.0 wt%
Genotoxicity: This product is considered non-mutagenic and has negative potential for tumor development based on from Modified Ames Assay, with Mutagenic Index of less than 1.0.

12. Ecological Information

Toxicity, Environmental Fate, Physical/Chemical Data, or Other Data Supporting Environmental Hazard Statements

If applied to leaves, this product may kill grasses and small plants by interfering with transpiration and respiration. This product is not toxic to fish but may coat gill structures resulting in suffocation if spilled in shallow, running water. Product may be moderately toxic to amphibians by preventing dermal respiration. This product may cause gastrointestinal distress to birds and mammals through ingestion during pelage grooming.

13. Disposal Considerations

Regulations

Dispose in accordance with all local, state, and federal regulations. Keep this product out of sewers and waterways.

Note: State or local requirements may differ from federal regulations. Processing or using this product may make the information here inappropriate. Waste generators are responsible for waste classification, transport, and disposal.

14. Transport Information

Regulated for shipping? ☐ Yes X No	Proper Shipping Name N/A	Packing Group N/A
Do changes in quantity, packaging, or shipment method change product qualification? ☐ Yes x No	Hazard Class N/A	Identification Number N/A
Other N/A		

15. Regulatory Information

Federal Regulations (OSHA, TSCA, CERCLA, FIFRA, EPCRA, CAA, CWA, SDWA, CPSA, DEA, FDA/USDA, etc.)

State Regulations

U.S. Federal Regulatory Information:

CERCLA/SARA
302/303/304 Categories: Extremely Hazardous Substances No
(40 CFR 355 Appendix A)
311/312 Categories: Immediate (Acute) Health Effects No
(40 CFR 370) Delayed (Chronic) Health Effects No
Fire Hazard No
Sudden Release of Pressure Hazard No
Reactivity Hazard No
313 Categories: Toxic Chemicals (40 CFR 372) No
Clean Air Act: Hazardous Air Pollutants (HAPS) No
Clean Water Act: If spilled into navigable waters it is reportable to National Response Center, 800-424-8802
(40 CFR 116; 401.15) Reportable Quantity = Oil Sheen present on navigable water surface
OSHA (29 CFR 1910): This product is not hazardous under Hazard Communication Standard 29 CFR 1910.1200
RCRA (40 CFR 261.133) This product does not meet hazardous waste criteria.
EPA/TSCA Inventory: The components of this product are listed on the EPA/TSCA Inventory of chemicals.
CAS No. 64742-52-5

State Regulations:
California Prop 65 No Proposition 65 chemicals exist in this product, no labeling required.
Florida No listed ingredients are present
Massachusetts RTK No listed ingredients are present
Minnesota RTK No listed ingredients are present
New Jersey RTK Lists petroleum oil, but this product does not contain hazardous ingredients.
Pennsylvania RTK Lists petroleum oil, but this product does not contain hazardous ingredients greater than 3%.
Illinois DOL TSL No listed ingredients are present

Other Regulations:
WHMIS (Canada) Not listed on the Canadian Controlled Product Ingredient Disclosure and is compliant with Controlled Products Regulation
CONEG Metals: Since cadmium, chromium, lead and mercury are not detectable and it does not exceed 100 ppm total in this product, it is compliant with CONEG Metals regulation.
EEC (Europe): This product is not known to be a dangerous good internationally.
No known R-Phrases or S-Phrases
Hazard Label None
Danger Symbol None

International Regulations

N/A

Other

Not all ingredients will be present in some finished products.

16. Other Information

Label Text, Hazard Rating System, Key Legend, or Other

Abbreviations

ACGIH(American Conference of Governmental Industrial Hygienists); ANSI(American National Standards Institute); CAS(Chemical Abstract Service); CERCLA(Comprehensive Environmental Response, Compensation, & Liability Act); CFR(Code of Federal Regulations); CHIP (Chemicals Hazard Information & Packaging for Supply); CONCAWE (European Organization for Environment, Health & Safety); CPR(Controlled Products Regulations); DOL (Department of Labor); EED(European Economic Community Directives); EINECS (European Inventory of Existing Commercial Chemical Substances); EL50 (Effective loading rate required to immobilize 50% invertebrate species); ELINCS(European List of New Chemical Substances); EPA (Environmental Protection Agency); EPCRA(Emergency Planning & Community Right-To-Know Act of 1986); EU(European Union); FDA(Food & Drug Administration-USA); GHS (Global Harmonization System); HCS (Hazard Communication Standard); IARC(International Agency for Research on Cancer); ILO(International Labor Organization); LC50(Lethal Concentration 50% test organisms); LD50(Lethal Dose 50% test organisms); LVP-VOC(Low Vapor Pressure Volatile Organic Compound); MSDS(Material Safety Data Sheet); MSHA(Mine Safety & Health Administration); NIOSH(National Institute of Occupational Safety & Health);NTP(National Toxicology Program); OSHA(Occupational Safety & Health Administration); PEL(Permissible Exposure Limit); Prop 65(California Proposition 65); PMCC(Pensky Martin Closed Cup); RCRA(Resource Conservation & Recovery Act); RTK(Right-To-Know); R-Phrases(EU Risk Phrases; S-Phrases (EU Safety Phrases); SARA(Superfund Amendments & Reauthorization Act); TSCA (Toxic Substances Control Act); TSL (Toxic Substance List); TLV(Threshold Limit Value); WHMIS(Workplace Hazardous Materials Information System-Canada); IrL50 (Inhibitory loading rate required to reduce algal growth rate by 50%; IbL50 (Inhibitory loading rate required to reduce area under growth curve or biomass by 50%); ppm (parts per million); mg/m3 (milligrams per cubic meter); N(no); Y (yes)

NFPA Hazard Rating – Health **0 Slight**
-Fire **1 Slight**
Reactivity **0 Least**

Prepared By: Juan Parker **Phone:** (318)524-1100

This MSDS complies with OSHA Hazard Communication Standard (HCS) 29 CFR 1910.1200 and conforms to ANSI Z 400.1 16-Section Format.

Disclaimer: Omni Specialty Packaging believes this information is accurate but not all-inclusive in all circumstances. It is the responsibility of the user to determine suitability of the material for their purposes. No warranty, expressed or implied, is given.

NOTE: OSHA's Hazard Communication Standard (29 CFR 1910.1200) does not require the information requested in Sections 11, 12, 13, 14, 15, and 16 for MSDSs. If your company chooses not to fill in these sections, you may wish to enter something (like N/R for "not regulated" or N/A for "not applicable") to indicate that the field is purposely being left blank.

Safety Data Sheet

According to OSHA HCS 2012 (29 CFR 1910.1200)

Section 1: Identification

Product Identifier:	**Megaflow® AW Hydraulic Oil**
Other means of identification:	Megaflow® AW Hydraulic Oil 22, 32, 46, 68, 100, 150, 220, 320 Megaflow® AW Ultra-Clean Hydraulic Oil 32, 46, 68, 100
SDS Number:	814637
Intended Use:	Hydraulic Fluid
Uses Advised Against:	All others
Emergency Health and Safety Number:	Chemtrec: 800-424-9300 (24 Hours)

Manufacturer:
Phillips 66 Lubricants
P.O. Box 4428
Houston, TX 77210

SDS Information:
Phone: 800-762-0942
Email: SDS@P66.com
URL: www.Phillips66.com

Customer Service:
U.S.: 1-800-822-6457 or International: +1-83-2486-336
Technical Information: 1-877-445-9198

Section 2: Hazards Identification

Classified Hazards
This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Other Hazards
None Known

Label Elements

No classified hazards

Section 3: Composition / Information on Ingredients

Chemical Name	CASRN	Concentration[1]
Distillates, petroleum, hydrotreated heavy paraffinic	64742-54-7	<100
Residual oils, petroleum, solvent-dewaxed	64742-62-7	<90
Non-Hazardous Materials	VARIOUS	<5

[1] All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Section 4: First Aid Measures

Eye Contact: If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.

Skin Contact: Remove contaminated shoes and clothing and cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops and persists, seek medical attention. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician. (see Note to Physician)

Inhalation (Breathing): First aid is not normally required. If breathing difficulties develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. Seek immediate medical attention.

Ingestion (Swallowing): First aid is not normally required; however, if swallowed and symptoms develop, seek medical attention.

Most important symptoms and effects, both acute and delayed: Inhalation of oil mists or vapors generated at elevated temperatures may cause respiratory irritation. Accidental ingestion can result in minor irritation of the digestive tract, nausea and diarrhea. Dry skin and possible irritation with repeated or prolonged exposure.

Notes to Physician: Acute aspirations of large amounts of oil-laden material may produce a serious aspiration pneumonia. Patients who aspirate these oils should be followed for the development of long-term sequelae. Inhalation exposure to oil mists below current workplace exposure limits is unlikely to cause pulmonary abnormalities. When using high-pressure equipment, injection of product under the skin can occur. In this case, the casualty should be sent immediately to the hospital. Do not wait for symptoms to develop. High-pressure hydrocarbon injection injuries may produce substantial necrosis of underlying tissue despite an innocuous appearing external wound. These injuries often require extensive emergency surgical debridement and all injuries should be evaluated by a specialist in order to assess the extent of injury. Early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

Section 5: Fire-Fighting Measures

NFPA 704 Hazard Class

Health: 0 **Flammability:** 1 **Instability:** 0

0 (Minimal)
1 (Slight)
2 (Moderate)
3 (Serious)
4 (Severe)

Extinguishing Media: Dry chemical, carbon dioxide, foam, or water spray is recommended. Water or foam may cause frothing of materials heated above 212°F / 100°C. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

Specific hazards arising from the chemical

Unusual Fire & Explosion Hazards: This material may burn, but will not ignite readily. If container is not properly cooled, it can rupture in the heat of a fire.

Hazardous Combustion Products: Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Oxides of sulfur, nitrogen or phosphorus may also be formed.

Special protective actions for firefighters: For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done safely. Avoid spreading burning liquid with water used for cooling purposes.

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: This material may burn, but will not ignite readily. Keep all sources of ignition away from spill/release. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

Environmental Precautions: Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Use water sparingly to minimize environmental contamination and reduce disposal requirements. If spill occurs on water notify appropriate authorities and advise shipping of any hazard. Spills into or upon navigable waters, the contiguous zone, or adjoining shorelines that cause a sheen or discoloration on the surface of the water, may require notification of the National Response Center (phone number 800-424-8802).

Methods and material for containment and cleaning up: Notify relevant authorities in accordance with all applicable regulations. Immediate cleanup of any spill is recommended. Dike far ahead of spill for later recovery or disposal. Absorb spill with inert material such as sand or vermiculite, and place in suitable container for disposal. If spilled on water remove with appropriate methods (e.g. skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken. See Section 13 for information on appropriate disposal.

Section 7: Handling and Storage

Precautions for safe handling: Keep away from flames and hot surfaces. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8). Spills will produce very slippery surfaces. High pressure injection of hydrocarbon fuels, hydraulic oils or greases under the skin may have serious consequences even though no symptoms or injury may be apparent. This can happen accidentally when using high pressure equipment such as high pressure grease guns, fuel injection apparatus or from pinhole leaks in tubing of high pressure hydraulic oil equipment.

Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. Do not wear contaminated clothing or shoes.

Conditions for safe storage: Storage temperatures above 113°F may lead to thermal decomposition, resulting in the generation of hydrogen sulfide and other sulfur containing gases. Use and store this material in cool, dry, well-ventilated area away from heat and all sources of ignition. Keep container(s) tightly closed and properly labeled. Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1, and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Section 8: Exposure Controls / Personal Protection

Chemical Name	ACGIH	OSHA	Other
Distillates, petroleum, hydrotreated heavy paraffinic	TWA: 5mg/m³ STEL: 10 mg/m³ as Oil Mist, if Generated	TWA: 5mg/m³ as Oil Mist, if Generated	—
Residual oils, petroleum, solvent-dewaxed	TWA: 5mg/m³ STEL: 10 mg/m³ as Oil Mist, if Generated	TWA: 5mg/m³ as Oil Mist, if Generated	—

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Eye/Face Protection: The use of eye/face protection is not normally required; however, good industrial hygiene practice suggests the use of eye protection that meets or exceeds ANSI Z.87.1 whenever working with chemicals.

Skin/Hand Protection: The use of skin protection is not normally required; however, good industrial hygiene practice suggests the use of gloves or other appropriate skin protection whenever working with chemicals. Suggested protective materials: Nitrile

Respiratory Protection: Where there is potential for airborne exposure above the exposure limit a NIOSH certified air purifying respirator equipped with R or P95 filters may be used.

A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use. Air purifying respirators provide limited protection and cannot be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturer's instructions), in oxygen deficient (less than 19.5 percent oxygen) situations, or under conditions that are immediately dangerous to life and health (IDLH).

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

Section 9: Physical and Chemical Properties

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm). Data represent typical values and are not intended to be specifications.

Appearance: Amber, Transparent
Physical Form: Liquid
Odor: Petroleum
Odor Threshold: No data
pH: Not applicable
Vapor Density (air=1): >1
Upper Explosive Limits (vol % in air): No data
Lower Explosive Limits (vol % in air): No data
Evaporation Rate (nBuAc=1): No data
Particle Size: N/A
Percent Volatile: No data
Flammability (solid, gas): May Ignite
Solubility in Water: Negligible

Flash Point: > 302 °F / > 150 °C
Test Method: Pensky-Martens Closed Cup (PMCC), ASTM D93, EPA 1010
Initial Boiling Point/Range: No data
Vapor Pressure: <1 mm Hg
Partition Coefficient (n-octanol/water) (Kow): No data
Melting/Freezing Point: No data
Auto-Ignition Temperature: No data
Decomposition Temperature: No data
Specific Gravity (water=1): 0.85-0.89 @ 60°F (15.6°C)
Bulk Density: 7.08-7.41 lbs/gal
Viscosity: 4.0 - 25 cSt @ 100°C; 21 - 345 cSt @ 40°C
Pour Point: < 10 °F / < -12 °C

Section 10: Stability and Reactivity

Reactivity: Not chemically reactive.

Chemical stability: Stable under normal ambient and anticipated conditions of use.

Possibility of hazardous reactions: Hazardous reactions not anticipated.

Conditions to avoid: Avoid all possible sources of ignition. Extended exposure to high temperatures can cause decomposition.

Incompatible materials: Avoid contact with strong oxidizing agents and strong reducing agents.

Hazardous decomposition products: Not anticipated under normal conditions of use.

Section 11: Toxicological Information

Information on Toxicological Effects of Substance/Mixture

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	Unlikely to be harmful		>5 mg/L (mist, estimated)
Dermal	Unlikely to be harmful		> 2 g/kg (estimated)
Oral	Unlikely to be harmful		> 5 g/kg (estimated)

Aspiration Hazard: Not expected to be an aspiration hazard.

Skin Corrosion/Irritation: Not expected to be irritating. Repeated exposure may cause skin dryness or cracking.

Serious Eye Damage/Irritation: Not expected to be irritating.

Skin Sensitization: No information available on the mixture, however none of the components have been classified for skin sensitization (or are below the concentration threshold for classification).

Respiratory Sensitization: No information available.

Specific Target Organ Toxicity (Single Exposure): Not expected to cause organ effects from single exposure.

Specific Target Organ Toxicity (Repeated Exposure): Not expected to cause organ effects from repeated exposure.

Carcinogenicity: No information available on the mixture, however none of the components have been classified for carcinogenicity (or are below the concentration threshold for classification).

Germ Cell Mutagenicity: No information available on the mixture, however none of the components have been classified for germ cell mutagenicity (or are below the concentration threshold for classification).

Reproductive Toxicity: No information available on the mixture, however none of the components have been classified for reproductive toxicity (or are below the concentration threshold for classification).

Information on Toxicological Effects of Components

Lubricant Base Oil (Petroleum)

Carcinogenicity: The petroleum base oils contained in this product have been highly refined by a variety of processes including severe hydrocracking/hydroprocessing to reduce aromatics and improve performance characteristics. All of the oils meet the IP-346 criteria of less than 3 percent PAH's and are not considered carcinogens by NTP, IARC, or OSHA.

Section 12: Ecological Information

GHS Classification:
No classified hazards

Toxicity: All acute aquatic toxicity studies on samples of lubricant base oils show acute toxicity values greater than 100 mg/L for invertebrates, algae and fish. These tests were carried out on water accommodated fractions and the results are consistent with the predicted aquatic toxicity of these substances based on their hydrocarbon compositions.

Persistence and Degradability: The hydrocarbons in this material are not readily biodegradable, but since they can be degraded by microorganisms, they are regarded as inherently biodegradable.

Bioaccumulative Potential: Log Kow values measured for the hydrocarbon components of this material are greater than 5.3, and therefore regarded as having the potential to bioaccumulate. In practice, metabolic processes may reduce bioconcentration.

Mobility In Soil: Volatilization to air is not expected to be a significant fate process due to the low vapor pressure of this material. In water, base oils will float and spread over the surface at a rate dependent upon viscosity. There will be significant removal of hydrocarbons from the water by sediment adsorption. In soil and sediment, hydrocarbon components will show low mobility with adsorption to sediments being the predominant physical process. The main fate process is expected to be slow biodegradation of the hydrocarbon constituents in soil and sediment.

Other adverse effects: None anticipated.

Section 13: Disposal Considerations

The generator of a waste is always responsible for making proper hazardous waste determinations and needs to consider state and local requirements in addition to federal regulations.

This material, if discarded as produced, would not be a federally regulated RCRA "listed" hazardous waste and is not believed to exhibit characteristics of hazardous waste. See Sections 7 and 8 for information on handling, storage and personal protection and Section 9 for physical/chemical properties. It is possible that the material as produced contains constituents which are not required to be listed in the MSDS but could affect the hazardous waste determination. Additionally, use which results in chemical or physical change of this material could subject it to regulation as a hazardous waste.

This material under most intended uses would become "Used Oil" due to contamination by physical or chemical impurities. Whenever possible, Recycle used oil in accordance with applicable federal and state or local regulations. Container contents should be completely used and containers should be emptied prior to discard.

Section 14: Transport Information

U.S. Department of Transportation (DOT)

Shipping Description:	***Not regulated***
Note:	***If shipped by land in a packaging having a capacity of 3,500 gallons or more, the provisions of 49 CFR, Part 130 apply. (Contains oil)***

International Maritime Dangerous Goods (IMDG)

Shipping Description:	***Not regulated***
Note:	***U.S. DOT compliance requirements may apply. See 49 CFR 171.22, 23 & 25.***

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

International Civil Aviation Org. / International Air Transport Assoc. (ICAO/IATA)

UN/ID #:	***Not regulated***
Note:	***U.S. DOT compliance requirements may apply. See 49 CFR 171.22, 23 & 24.***

	LTD. QTY	Passenger Aircraft	Cargo Aircraft Only
Packaging Instruction #:	—	—	—
Max. Net Qty. Per Package:	—	—	—

Section 15: Regulatory Information

CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (In pounds):
This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

CERCLA/SARA - Section 311/312 (Title III Hazard Categories)

Acute Health Hazard:	No
Chronic Health Hazard:	No
Fire Hazard:	No
Pressure Hazard:	No
Reactive Hazard:	No

CERCLA/SARA - Section 313 and 40 CFR 372:
This material does not contain any chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372.

EPA (CERCLA) Reportable Quantity (In pounds):
This material does not contain any chemicals with CERCLA Reportable Quantities.

California Proposition 65:
This material does not contain any chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm at concentrations that trigger the warning requirements of California Proposition 65.

International Hazard Classification

Canada:
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the Regulations.

WHMIS Hazard Class:
none

National Chemical Inventories
All components are either listed on the US TSCA Inventory, or are not regulated under TSCA
All components are either on the DSL, or are exempt from DSL listing requirements.

U.S. Export Control Classification Number: EAR99

Section 16: Other Information

Date of Issue:	Previous Issue Date:	SDS Number:	Status:
21-Aug-2013	16-Aug-2013	814637	FINAL

Revised Sections or Basis for Revision:
Periodic review and update; Regulatory information (Section 15)

Guide to Abbreviations:
ACGIH = American Conference of Governmental Industrial Hygienists; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; GHS = Globally Harmonized System; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)

Disclaimer of Expressed and Implied Warranties:
The information presented in this Safety Data Sheet is based on data believed to be accurate as of the date this Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

CITGO No. 2 Diesel Fuel, Low Sulfur, All Grades
Material Safety Data Sheet

CITGO Petroleum Corporation
P. O. Box 4689
Houston, TX 77210

MSDS No. AG2DF
Revision Date 12/31/2007

IMPORTANT: This MSDS is prepared in accordance with 29 CFR 1910.1200. Read this MSDS before transporting, handling, storing or disposing of this product and forward this information to employees, customers and users of this product.

Hazard Rankings	HMIS	NFPA
Health Hazard	* 2	0
Fire Hazard	2	2
Reactivity	0	0

* = Chronic Health Hazard

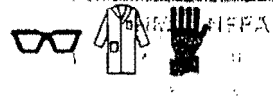
Emergency Overview

Physical State Liquid.
Color Transparent, clear to yellow or red. **Odor** Characteristic, kerosene-like.

WARNING!
Combustible liquid; vapor may cause flash fire.
Harmful or fatal if swallowed - can enter lungs and cause damage.
Can cause eye, skin or respiratory tract irritation.
May be harmful if inhaled or absorbed through the skin.
Overexposure can cause central nervous system (CNS) depression and/or other target organ effects.
Possible Cancer Hazard (See Section 3)
Harmful to aquatic organisms.

Protective Equipment

Minimum Recommended
See Section 8 for Details



SECTION 1. PRODUCT IDENTIFICATION

Trade Name	CITGO No. 2 Diesel Fuel, Low Sulfur, All Grades	**Technical Contact**	(832) 486-5940
Product Number	Various	**Medical Emergency**	(832) 486-4700
CAS Number	68476-34-6	**CHEMTREC Emergency (United States Only)**	(800) 424-9300
Product Family	Motor fuels.		
Synonyms	No. 2-D Grade Diesel Fuel Oil (defined by ASTM D-975); Treated or Refined Diesel Fuel No. 2; Diesel No. 2; Diesel Motor Fuel No. 2; Diesel Oil (Medium); Grade 2 Distillate Fuel; Hydrodesulfurized (HDS) Light Catalytically Cracked Distillate; Middle Distillates (Petroleum); HDS Diesel; Hydrodesulfurized Medium Distillate; HDS Middle Distillate; C9-C16 Petroleum Hydrocarbons; Ultra Low Sulfur Diesel.		

SECTION 2. COMPOSITION

This product may be composed, in whole or in part, of any of the following refinery streams:

Diesel Fuel No. 2 [CAS No.: 68476-34-6]
Hydrodesulfurized Middle Distillate (petroleum) [CAS No.: 64742-80-9]
Hydrodesulfurized Light Catalytic Cracked Distillate (Petroleum) [CAS No.: 68333-25-5]
Kerosene [CAS No.: 8008-20-6]
Hydrodesulfurized Kerosine (Petroleum) [CAS No.: 64742-81-0]

This product contains the following chemical components:

Component Name(s)	CAS Registry No.	Concentration (%)

Nonane, all isomers	Mixture	1 - 10
Trimethylbenzenes, all isomers	25551-13-7	0 - 2
Naphthalene	91-20-3	0 - 2
Cumene	98-82-8	0 - 1
Ethylbenzene	100-41-4	0 - 1

SECTION 3. HAZARDS IDENTIFICATION

Also see Emergency Overview and Hazard Ratings on the top of Page 1 of this MSDS.

Major Route(s) of Entry Skin contact. Inhalation.

Signs and Symptoms of Acute Exposure

Inhalation Breathing high concentrations may be harmful. Mist or vapor can irritate the throat and lungs. Breathing this material may cause central nervous system depression with symptoms including nausea, headache, dizziness, fatigue, drowsiness, or unconsciousness.

Eye Contact This material can cause eye irritation with tearing, redness, or a stinging or burning feeling. Further, it can cause swelling of the eyes with blurred vision. Effects may become more serious with repeated or prolonged contact.

Skin Contact This material can cause skin irritation. Symptoms include redness, itching, and burning of the skin. This material can be absorbed by the skin and produce central nervous system depression (headache, nausea, fatigue and/or other symptoms including unconsciousness). If the skin is damaged, absorption increases. Prolonged and/or repeated contact may cause severe dermatitis and/or more serious skin disorders. Chronic symptoms may include drying, swelling, scaling, blistering, cracking, and/or severe tissue damage.

Ingestion If swallowed, this material may irritate the mouth, throat, and esophagus. It can be absorbed into the blood stream through the stomach and intestinal tract. Symptoms may include a burning sensation of the mouth and esophagus, nausea and vomiting. In addition, it can cause central nervous system effects characterized by dizziness, staggering, drowsiness, delirium and/or loss of consciousness.

Because of the low viscosity, this material can enter the lungs directly by aspiration during swallowing or subsequent vomiting. Aspiration of a small amount of liquid can cause severe lung damage and/or death.

Chronic Health Effects Summary Secondary effects of ingestion and subsequent aspiration into the lungs may cause pneumatocele (lung cavity) formation and chronic lung dysfunction.

This product contains petroleum middle distillates similar to those shown to produce skin tumors on laboratory rodents following repeated application. All tumors appeared during the latter portion of the typical 2-year lifespan of the animals. Certain studies have shown that washing the exposed skin of the test animal with soap and water between treatments greatly reduces the potential tumorigenic effects. These data suggest that good personal hygiene is effective in reducing the risk of this potential adverse health effect.

This material and/or its components have been associated with developmental toxicity, reproductive toxicity, genotoxicity, immunotoxicity, and/or carcinogenicity. Refer to Section 11 of this MSDS for additional health-related information.

Conditions Aggravated by Exposure Disorders of the following organs or organ systems that may be aggravated by significant exposure to this material or its components include: Skin, Respiratory System, Liver, Kidneys, Central Nervous System (CNS)

Target Organs May cause damage to the following organs: kidneys, lungs, liver, mucous membranes, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea

Carcinogenic Potential

This material may contain ethylbenzene and naphthalene at concentrations above 0.1%. IARC has identified ethylbenzene and naphthalene as possibly carcinogenic to humans (Group 2B) based on laboratory animal studies. The NTP has determined that naphthalene is *reasonably anticipated to be a human carcinogen* based on sufficient evidence from studies in experimental animals. NTP has determined that exposure to diesel exhaust particulates, a complex mixture of combustion products of diesel fuel, is reasonably anticipated to be a human carcinogen.

OSHA Hazard Classification is indicated by an "X" in the box adjacent to the hazard title. If no "X" is present, the product does not exhibit the hazard as defined in the OSHA Hazard Communication Standard (29 CFR 1910.1200).

OSHA Health Hazard Classification				OSHA Physical Hazard Classification					
Irritant	X	Sensitizer		Combustible	X	Explosive		Pyrophoric	
Toxic		Highly Toxic		Flammable		Oxidizer		Water-reactive	
Corrosive		Carcinogenic		Compressed Gas		Organic Peroxide		Unstable	

SECTION 4. FIRST AID MEASURES

Take proper precautions to ensure your own health and safety before attempting rescue or providing first aid. For more specific information, refer to Exposure Controls and Personal Protection in Section 8 of this MSDS.

Inhalation

Move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If breathing is difficult, 100 percent humidified oxygen should be administered by a qualified individual. Seek medical attention immediately. Keep the affected individual warm and at rest.

Eye Contact

Check for and remove contact lenses. Flush eyes with cool, clean, low-pressure water for at least 15 minutes while occasionally lifting and lowering eyelids. Do not use eye ointment unless directed to by a physician. Seek medical attention if excessive tearing, irritation, or pain persists.

Skin Contact

Remove contaminated shoes and clothing. Flush affected area with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. Do not use ointments. If skin surface is not damaged, clean affected area thoroughly with mild soap and water. Seek medical attention if tissue appears damaged or if pain or irritation persists.

Ingestion

Do not induce vomiting. If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. Never give anything by mouth to a person who is not fully conscious. Do not leave victim unattended. Seek medical attention immediately.

Notes to Physician

INHALATION: Inhalation overexposure can produce toxic effects. Monitor for respiratory distress. If cough or difficulty in breathing develops, evaluate for upper respiratory tract inflammation, bronchitis, and pneumonitis. Administer supplemental oxygen with assisted ventilation, as required.

INGESTION: If ingested, this material presents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended. Consider activated charcoal and/or gastric lavage. If patient is obtunded, protect the airway by cuffed endotracheal intubation or by placement of the body in a Trendelenburg and left lateral decubitus position.

SECTION 5. FIRE FIGHTING MEASURES

NFPA Flammability Classification	NFPA Class-II combustible liquid.
Flash Point	Closed cup: AP 52°C (AP 125°F). (Pensky-Martens.)
Lower Flammable Limit	AP 0.6 % **Upper Flammable Limit** AP 7.5 %
Autoignition Temperature	>254°C (>489°F)
Hazardous Combustion Products	Carbon dioxide, carbon monoxide, smoke, fumes, unburned hydrocarbons and oxides of sulfur and nitrogen.
Special Properties	Combustible Liquid! This material releases vapors when heated above ambient temperatures. Vapors can cause a flash fire. Vapors can travel to a source of ignition and flashback. A vapor and air mixture can create an explosion hazard in confined spaces such as sewers. Use only with adequate ventilation. If container is not properly cooled, it can rupture in the heat of a fire.
Extinguishing Media	SMALL FIRE: Use dry chemicals, carbon dioxide, foam, or inert gas (nitrogen). Carbon dioxide and inert gas can displace oxygen. Use caution when applying carbon dioxide or inert gas in confined spaces. LARGE FIRE: Use foam, water fog, or water spray. Water fog and spray are effective in cooling containers and adjacent structures. However, water can cause frothing and/or may not extinguish the fire. Water can be used to cool the external walls of vessels to prevent excessive pressure, autoignition or explosion. DO NOT use a solid stream of water directly on the fire as the water may spread the fire to a larger area.
Protection of Fire Fighters	Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Evacuate area and fight the fire from a maximum distance or use unmanned hose holders or monitor nozzles. Cover pooling liquid with foam. Containers can build pressure if exposed to radiant heat; cool adjacent containers with flooding quantities of water until well after the fire is out. Withdraw immediately from the area if there is a rising sound from a venting safety device or discoloration of vessels, tanks, or pipelines. Be aware that burning liquid will float on water. Notify appropriate authorities of potential fire and explosion hazard if liquid enter sewers or waterways.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Take proper precautions to ensure your own health and safety before attempting spill control or clean-up. For more specific information, refer to the Emergency Overview on Page 1, Exposure Controls and Personal Protection in Section 8 and Disposal Considerations in Section 13 of this MSDS.

Combustible Liquid! Release can result in a fire hazard. Evacuate all non-essential personnel from release area. Establish a regulated zone with site control and security. Eliminate all ignition sources. Stop the leak if it can done without risk. A vapor-suppressing foam may be used to reduce vapors. Properly bond or ground all equipment used when handling this material. Avoid skin contact. Do not walk through spilled material. Verify that responders are properly trained and wearing appropriate personnel protective equipment. Dike far ahead of a liquid spills. Do not allow released material to entry waterways, sewers, basements, or confined areas. This material will float on water. Absorb or cover with dry earth, sand or other non-combustible material. Use clean, non-sparking tools to collect absorbed material. Place spent sorbent materials, free liquids and other clean-up debris into proper waste containers for appropriate disposal. Certain releases must be reported to the National Response Center (800/424-8802) and state or regulatory authorities. Comply with all laws and regulations.

SECTION 7. HANDLING AND STORAGE

Handling

Combustible Liquid!
A static electrical charge can accumulate when this material is flowing through pipes, nozzles or filters and when it is agitated. A static spark discharge can ignite accumulated vapors particularly during dry weather conditions. Always bond receiving containers to the fill pipe before and during loading. Always keep nozzle in contact with the container throughout the loading process. Do not fill any portable container in or on a vehicle. Special precautions, such as reduced loading rates and increased monitoring, must be observed during "switch loading" operations (i.e., loading this material in tanks or shipping compartments that previously containing gasoline or similar low flash point products).

Fire hazard increases as product temperature approaches its flash point. Keep container closed and drum bungs in place. Remove spillage immediately from walking areas. Do not handle or store near heat, sparks or other potential ignition sources. Do not handle or store with oxidizing agents. Avoid breathing mist or vapor. Never siphon by mouth. Do not taste or swallow. Avoid contact with eyes, skin and clothing. Use gloves constructed of impervious materials and protective clothing if direct contact is anticipated. Provide ventilation to maintain exposure potential below applicable exposure levels. Avoid water contamination. Wash thoroughly after handling. Prevent contact with food or tobacco products.

When performing repairs and maintenance on contaminated equipment, keep unnecessary persons from hazard area. Eliminate heat, flame and other potential ignition sources. Drain and purge equipment, as necessary, to remove material residues. Remove contaminated clothing. Wash exposed skin thoroughly with soap and water after handling.

Do not use this material as fuel for equipment, such as portable heaters, in enclosed areas. Hazardous combustion products can cause death.

Protect the environment from releases of this material. Prevent discharges to surface waters and groundwater. Maintain handling, transfer and storage equipment in proper working order.

Misuse of empty containers can be dangerous. Empty containers may contain material residues which can ignite with explosive force. **Cutting or welding of empty containers can cause fire, explosion, or release of toxic fumes from residues.** Do not pressurize or expose empty containers to open flame, sparks, or heat. Keep container closed and drum bungs in place. All label warnings and precautions must be observed. Return empty drums to a qualified reconditioner. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling, or disposing of empty containers and/or waste residues of this material.

Storage

Store in a cool, dry, well-ventilated place. Keep containers tightly closed. Do not store this product near heat, flame or other potential ignition sources. Do not store with oxidizers. Do not store this product in unlabeled containers. Do not puncture or incinerate containers. Ground all equipment containing this material. All electrical equipment in areas where this material is stored or handled must meet all applicable requirements of the NFPA's National Electrical Code (NEC). Store and transport in accordance with all applicable laws.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls

Provide ventilation or other engineering controls to keep the airborne concentrations of vapor or mists below the applicable workplace exposure limits indicated below. All electrical equipment should comply with the National Electric Code. An emergency eye wash station and safety shower should be located near the work-station.

Personal Protective Equipment

Personal protective equipment should be selected based upon the conditions under which this material is used. A hazard assessment of the work area for PPE requirements should be conducted by a qualified professional pursuant to OSHA regulations. The following pictograms represent the minimum requirements for personal protective equipment. For certain operations, additional PPE may be required.

Eye Protection	Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. Chemical goggles should be worn during transfer operations or when there is a likelihood of misting, splashing, or spraying of this material. A suitable emergency eye wash water and safety shower should be located near the work station.
Hand Protection	Avoid skin contact. Use heavy duty gloves constructed of chemical resistant materials such as Viton® or heavy nitrile rubber. Wash hands with plenty of mild soap and water before eating, drinking, smoking, use of toilet facilities or leaving work. DO NOT use gasoline, kerosene, solvents or harsh abrasives as skin cleaners.
Body Protection	Avoid skin contact. Wear long-sleeved fire-retardant garments (e.g., Nomex®) while working with flammable and combustible liquids. Additional chemical-resistant protective gear may be required if splashing or spraying conditions exist. This may include an apron, boots and additional facial protection. If product comes in contact with clothing, immediately remove soaked clothing and shower. Promptly remove and discard contaminated leather goods.
Respiratory Protection	Airborne concentration will determine the level of respiratory protection required. Respiratory protection is normally not required unless the product is heated or misted. For known or anticipated vapor or mist concentrations above the occupational exposure guidelines (see below), use a NIOSH-approved organic vapor respirator equipped with a dust/mist prefilter if adequate protection is provided. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134).
General Comments	Warning! Use of this material in spaces without adequate ventilation may result in generation of hazardous levels of combustion products and/or inadequate oxygen levels for breathing. Odor is an inadequate warning for hazardous conditions.

Occupational Exposure Guidelines

Substance	Applicable Workplace Exposure Levels
Nonane, all isomers	**ACGIH (United States).** TWA: 200 ppm 8 hour(s).
Ethylmethylbenzene, all isomers	Not available.
Trimethylbenzenes, all isomers	**ACGIH (United States).** TWA: 25 ppm 8 hour(s).
Naphthalene	**ACGIH (United States). Skin** TWA: 10 ppm 8 hour(s). STEL: 15 ppm 15 minute(s). **OSHA (United States).** TWA: 10 ppm 8 hour(s).
Cumene	**ACGIH (United States).** TWA: 50 ppm 8 hour(s). **OSHA (United States). Skin** TWA: 50 ppm 8 hour(s).
n-Propylbenzene	Not available.
1, 2, 4-Trimethylbenzene	Not available.
Ethylbenzene	**ACGIH (United States).** TWA: 100 ppm 8 hour(s). STEL: 125 ppm 15 minute(s). **OSHA (United States).** TWA: 100 ppm 8 hour(s).
Xylene, all isomers	**ACGIH (United States).** TWA: 100 ppm 8 hour(s). STEL: 150 ppm 15 minute(s). **OSHA (United States).** TWA: 100 ppm 8 hour(s).
Diesel exhaust particulate	Not available.

Benzene	**ACGIH (United States). Skin** TWA: 0.5 ppm 8 hour(s). STEL: 2.5 ppm 15 minute(s). **OSHA (United States). Skin Notes: See Table Z-2 for exclusions in 20 CFR 1910.1028 to the PEL.** TWA: 1 ppm 8 hour(s). STEL: 5 ppm 15 minute(s).
Toluene	**ACGIH (United States). Skin** TWA: 20ppm 8 hour(s). **OSHA (United States).** TWA: 200 ppm 8 hour(s). CEIL: 300 ppm PEAK: 500 ppm
Middle distillates, petroleum	Not available.
Straight-run middle distillate (petroleum)	**ACGIH (United States, 1998). Skin** TWA: 100 mg/m^3
Distillates, petroleum, light catalytic cracked	Not available.
Kerosene	**NIOSH REL (United States).** TWA: 100 mg/m^3 8 hour(s).
Hydrodesulfurized middle distillate (petroleum)	Not available.
Hydrodesulfurized Kerosine (Petroleum)	Not available.
Distillates, petroleum, hydrodesulfurized light catalytic cracked	Not available.
Diesel Fuel No. 2	**ACGIH TLV (United States). Skin** TWA: 100 mg/m^3 8 hour(s).

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES (TYPICAL)

Physical State	Liquid.	**Color**	Transparent, clear to yellow or red.	**Odor**	Characteristic, kerosene-like.
Specific Gravity	AP 0.84 (Water = 1)	**pH**	Not Applicable.	**Vapor Density**	AP 5 (Air = 1)
Boiling Range	154° C (309° F) to 371° C (700° F)			**Melting/Freezing Point**	Not available.
Vapor Pressure	<0.3 kPa (<2 mm Hg) (at 20°C)			**Volatility**	840 g/l VOC (w/v)
Solubility in Water	Very slightly soluble in cold water. (<0.1 % w/w)			**Viscosity (cSt @ 40°C)**	AP 3
Flash Point	Closed cup: AP 52°C (AP 125°F). (Pensky-Martens.)				
Additional Properties	Density = AP 7.0 lbs/gal. Viscosity (ASTM D2161) = 30 - 40 SUS @ 100° F				

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability	Stable. **Hazardous Polymerization** Not expected to occur.
Conditions to Avoid	Keep away from all ignition sources and strong oxidizing conditions.
Materials Incompatibility	Strong acids, alkalies, and oxidizers such as liquid chlorine, other halogens, hydrogen peroxide and oxygen.
Hazardous Decomposition Products	No additional hazardous decomposition products were identified other than the combustion products identified in Section 5 of this MSDS.

SECTION 11. TOXICOLOGICAL INFORMATION

For other health-related information, refer to the Emergency Overview on Page 1 and the Hazards Identification in Section 3 of this MSDS.

Toxicity Data

Diesel Fuel, No. 2
ORAL LD50, Acute: 12,000 to 17,500 mg/kg or 9.0 ml/kg [Rat]
DERMAL LD50, Acute: >5.0 ml/kg [Rabbit screen level].
DRAIZE EYE, Acute: Mild irritant [Rabbit]
DRAIZE DERMAL, Acute: Severe skin irritant [Rabbit].
BUEHLER DERMAL, Acute: Non-sensitizing [Guinea Pig]
14-Day DERMAL, Sub-chronic: 0% and 67% mortality at 4.0 and 8.0 ml/kg [Rabbit]
62-Week DERMAL, Chronic: 0.05 ml/kg 3x/week [Mouse] - Extreme skin irritation.
97-Week DERMAL, Chronic: 243 g/kg applied 3x/week [Mouse] - Extreme skin irritation. Moderate increase in contact-point skin tumors.
MUTAGENICITY:
Modified Ames Assay: Negative. [Salmonella typhimurium]
In-vitro SCE Ovary Assay: Negative. [Chinese Hamster]
In-vitro Lymphoma Assay: Negative. [Mouse]
In-vivo Dominant Lethal Assay: Negative. [Mouse]
In-vivo Bone Marrow Assay: Clastogenic at 2.0 ml/kg and 6.0 ml/kg [Rat]

Diesel exhaust particulate
Lung tumor and lymphomas were identified in rats and mice exposed to unfiltered diesel fuel exhaust in chronic inhalation studies. Further, epidemiological studies have identified increase incidences of lung cancer in US railroad workers and bladder cancer in bus and truck drivers possibly associated with exposure to diesel engine exhaust. NTP has determined that exposure to diesel exhaust particulates, a complex mixture of combustion products of diesel fuel, is reasonably anticipated to be a human carcinogen. In addition, NIOSH has identified complete diesel exhaust as a potential carcinogen.

Trimethylbenzenes, all isomers
Studies of Workers:
Levels of total hydrocarbon vapors present in the breathing atmosphere of these workers ranged from 10 to 60 ppm. The TCLo for humans is 10 ppm, with somnolence and respiratory tract irritation noted.

Studies in Laboratory Animals:
In inhalation studies with rats, four of ten animals died after exposures of 2400 ppm for 24 hours. An oral dose of 5 mL/kg resulted in death in one of ten rats. Minimum lethal intraperitoneal doses were 1.5 to 2.0 mL/kg in rats and 1.13 to 12 mL/kg in guinea pigs. Mesitylene (1, 3, 5 Trimethylbenzene) inhalation at concentrations of 1.5, 3.0, and 6.0 mg/L for six hours was associated with dose-related changes in white blood cell counts in rats. No significant effects on the complete blood count were noted with six hours per day exposure for five weeks, but elevations of alkaline phosphatase and SGOT were observed. Central nervous system depression and ataxia were noted in rats exposed to 5,100 to 9,180 ppm for two hours.

Naphthalene
Studies in Humans Overexposed to Naphthalene:
Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants as a result of hemolytic anemia from over-exposure to naphthalene. Persons with Glucose 6-phosphate dehydrogenase (G6PD) deficiency are more prone to the hemolytic effects of naphthalene. Adverse effects on the kidney have also been reported from over-exposure to naphthalene but these effects are believed to be a consequence of hemolytic anemia, and not a direct effect.

Studies in Laboratory Animals:
Hemolytic anemia has been observed in laboratory animals exposed to naphthalene. Laboratory rodents exposed to naphthalene vapor for 2 years (lifetime studies) developed non-neoplastic and neoplastic tumors and inflammatory lesions of the nasal and respiratory

tract. Cataracts and other adverse effects on the eye have been observed in laboratory animals exposed to high levels of naphthalene. Findings from a large number of bacterial and mammalian cell mutation assays have been negative. A few studies have shown chromosomal effects (elevated levels of Sister Chromatid Exchange or chromosomal aberrations) *in vitro*.

Ethylbenzene
Effects from Acute Exposure:
ORAL (LD50), Acute: 3,500 mg/kg [Rat].
DERMAL (LD50), Acute: 17,800 uL/kg [Rabbit].
INTRAPERITONEAL (LD50), Acute: 2,624 mg/kg [Rat].

Effects from Prolonged or Repeated Exposure:
Findings from a 2-year inhalation study in rodents conducted by NTP were as follows: Effects were observed only at the highest exposure level (750 ppm). At this level the incidence of renal tumors was elevated in male rats (tubular carcinomas) and female rats (tubular adenomas). Also, the incidence of tumors was elevated in male mice (alveolar and bronchiolar carcinomas) and female mice (hepatocellular carcinomas). IARC has classified ethyl benzene as "possibly carcinogenic to humans" (Group 2B). Studies in laboratory animals indicate some evidence of post-implantation deaths following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals indicate limited evidence of renal malformations, resorptions, and developmental delays following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals indicate some evidence of adverse effects on the liver, kidney, thyroid, and pituitary gland.

Middle distillates, petroleum
Long-term repeated (lifetime) skin exposure to similar materials has been reported to result in an increase in skin tumors in laboratory rodents. The relevance of these findings to humans is not clear at this time.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Freshwater Toxicity:
Concentration: 2400 ppm Exposure: 48 hrs. Species: Juven. Am. Shad (*Squalius cephalus*) Assay: TLM
Concentration: >127 ppm Exposure: 96 hrs. Species: Bluegill (*Lepomis macrochirus*) Assay: LC50

Saltwater Toxicity
Concentration: 10 ppm Exposure: 96 hrs. Species: Menhaden (*Brevoortia patronus*) Assay: LC50
Concentration: 10 ppm Exposure: 96 hrs. Species: Grass Shrimp Assay: LC50

Environmental Fate

If spilled, this material will normally evaporate. Hydrocarbon components may contribute to atmospheric smog. If released to the subsoils, petroleum middle distillate fuels will strongly adsorb to soils. Groundwater should be considered as an exposure pathway. Liquid and vapor can migrate through the subsurface and preferential pathways (such as utility line backfill) to downgradient receptors.

Middle distillates are potentially toxic to freshwater and saltwater ecosystems. Distillate fuels will normally float on water. In stagnant or slow-flowing waterways, a hydrocarbon layer can cover a large surface area. As a result, this oil layer can limit or eliminate natural atmospheric oxygen transport into the water. With time, if not removed, oxygen depletion in the waterway can cause a fish kill or create an anaerobic environment. Also, this coating action can also kill plankton, algae, and water birds.

SECTION 13. DISPOSAL CONSIDERATIONS

Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly, it is the responsibility of the user to determine the proper storage, transportation, treatment and/or disposal methodologies for spent materials and residues at the time of disposition.

Maximize material recovery for reuse or recycling. Recovered non-usable material may be regulated by US EPA as a hazardous waste due to its ignitibility (D001) and/or its toxic (D018) characteristics. In addition, conditions of use may cause this material to become a hazardous waste, as defined by Federal or State regulations. It is the responsibility of the user to determine if the material is a hazardous waste at the time of disposal. Transportation, treatment, storage, and disposal of waste material must be conducted in accordance with RCRA regulations (see 40 CFR Parts 260 through 271). Contact your regional US EPA office for guidance concerning case specific disposal issues. State and/or local regulations might be even more restrictive.

SECTION 14. TRANSPORT INFORMATION

The shipping description below may not represent requirements for all modes of transportation, shipping methods or locations outside of the United States.

US DOT Status A U.S. Department of Transportation (DOT) regulated material. The following U.S. DOT hazardous materials shipping description applies to bulk packaged material that is transported by highway or rail. Alternate shipping descriptions may be required for product transported by marine vessel, air or other method and for non-bulk packaged material.

Proper Shipping Name Diesel Fuel, Combustible liquid, NA1993, PG III

Hazard Class DOT Class: Combustible liquid with a flash point greater than 37.8°C (100°F).

Packing Group III

UN/NA Number NA 1993

Reportable Quantity A Reportable Quantity (RQ) has not been established for this material.

Placard(s)

Emergency Response Guide No. 128

MARPOL III Status Not a DOT "Marine Pollutant" per 49 CFR 171.8.

SECTION 15. REGULATORY INFORMATION

TSCA Inventory This product and/or its components are listed on the Toxic Substances Control Act (TSCA) inventory.

SARA 302/304 Emergency Planning and Notification The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to Subparts 302 and 304 to submit emergency planning and notification information based on Threshold Planning Quantities (TPQs) and Reportable Quantities (RQs) for "Extremely Hazardous Substances" listed in 40 CFR 302.4 and 40 CFR 355. No components were identified.

SARA 311/312 Hazard Identification The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to this subpart to submit aggregate information on chemicals by "Hazard Category" as defined in 40 CFR 370.2. This material would be classified under the following hazard categories:

fire, Acute (Immediate) Health Hazard, Chronic (Delayed) Health Hazard

SARA 313 Toxic Chemical Notification and Release Reporting

This product contains the following components in concentrations above *de minimis* levels that are listed as toxic chemicals in 40 CFR Part 372 pursuant to the requirements of Section 313 of SARA:
Naphthalene [CAS No.: 91-20-3] Concentration: 2%
Ethylbenzene [CAS No.: 100-41-4] Concentration: 0.9%

CERCLA

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center concerning release of quantities of "hazardous substances" equal to or greater than the reportable quantities (RQ's) listed in 40 CFR 302.4. As defined by CERCLA, the term "hazardous substance" does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically designated in 40 CFR 302.4. Chemical substances present in this product or refinery stream that may be subject to this statute are:
Naphthalene [CAS No.: 91-20-3] RQ = 100 lbs. (45.36 kg) Concentration: 2%
Cumene [CAS No.: 98-82-8] RQ = 5000 lbs. (2268 kg) Concentration: 0.9%
Ethylbenzene [CAS No.: 100-41-4] RQ = 1000 lbs. (453.6 kg) Concentration: 0.9%
Xylene, all isomers [CAS No.: 1330-20-7] RQ = 100 lbs. (45.36 kg) Concentration: 0.9%
Benzene [CAS No.: 71-43-2] RQ = 10 lbs. (4.536 kg) Concentration: 0.045%

Clean Water Act (CWA)

This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.

California Proposition 65

This material may contain the following components which are known to the State of California to cause cancer, birth defects or other reproductive harm, and may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):
Diesel exhaust particulate
Naphthalene: <2%
Ethylbenzene: <1%
Toluene: <0.1%
Benzene: <0.1%

New Jersey Right-to-Know Label

Diesel Fuel

Additional Remarks

As minimum requirements, CITGO recommends that the following advisory information be displayed on equipment used to dispense diesel fuel. Additional warnings specified by various regulatory authorities may be required: "**Diesel Fuel DANGER: Combustible Liquid. Use as a Motor Fuel Only.** DO NOT FILL CONTAINERS THAT HAVE PREVIOUSLY CONTAINED GASOLINE OR OTHER FLAMMABLE LIQUIDS. Sparks From static electricity can ignite flammable vapor residues. PLACE CONTAINER ON GROUND. DO NOT FILL ANY PORTABLE CONTAINER IN OR ON A VEHICLE. Containers must be metal or other material approved for storing diesel fuel. Keep nozzle spout in contact with the container during the entire filling operation. NO SMOKING! Do not leave nozzle unattended during filling. **HARMFUL OR FATAL IF SWALLOWED.** If swallowed, do not induce vomiting. Call Physician Immediately. Keep Out of Reach of Children. Avoid prolonged breathing of vapors. Never siphon by mouth. Do not store in vehicle or living space. Store and use in a well ventilated area. Do not use near heat, spark or flame. Keep container closed."

SECTION 16. OTHER INFORMATION

Refer to the top of Page 1 for the HMIS and NFPA Hazard Ratings for this product.

REVISION INFORMATION

Version Number	5.1
Revision Date	12/31/2007

ABBREVIATIONS

AP: Approximately EQ: Equal >: Greater Than <: Less Than NA: Not Applicable ND: No Data NE: Not Establishe

CITGO No. 2 Diesel Fuel, Low Sulfur, All Grades

ACGIH: American Conference of Governmental Industrial Hygienists
AIHA: American Industrial Hygiene Association
IARC: International Agency for Research on Cancer
NTP: National Toxicology Program
NIOSH: National Institute of Occupational Safety and Health
OSHA: Occupational Safety and Health Administration
NPCA: National Paint and Coating Manufacturers Association
HMIS: Hazardous Materials Information System
NFPA: National Fire Protection Association
EPA: US Environmental Protection Agency

DISCLAIMER OF LIABILITY

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THE CONDITIONS OR METHODS OF HANDLING, STORAGE, USE, AND DISPOSAL OF THE PRODUCT ARE BEYOND OUR CONTROL AND MAY BE BEYOND OUR KNOWLEDGE. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH HANDLING, STORAGE, USE OR DISPOSAL OF THE PRODUCT.

***** END OF MSDS *****

MSDS Document

Product ENCUT VANISHING OIL FF-1

1. Chemical Product and Company Identification

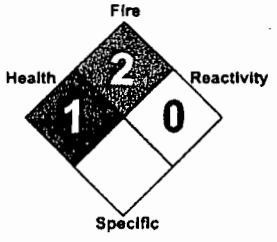
Product ENCUT VANISHING OIL FF-1

Synonyms: ALIPHATIC HYDROCARBON

MSDS ID EL4818

Engineered Lubricants Co.
11525 Rock Island Court
Maryland Heights , MO 63043

Contact Name
msds@englube.com
Phone Number
(314)872-9540 X3033
Emergency Phone
(800)424-9300
Revision Date 3/18/2013



Health:	1
Fire:	2
Reactivity:	0
Specific	

2. Composition and Information on Ingredients

Ingredient	CAS Number	Weight %	ACGIH TLV	PEL	STEL
REPORTABLE HAZARDOUS COMPONENTS	1111-11-11				
Naphtha(petroleum), hydrotreated heavy	64742-48-9	80% - 100%			

3. Hazard Identification

Emergency Overview

Warning: Combustible Liquid and Vapor.

APPEARANCE

Clear. Liquid.

PHYSICAL HAZARDS

Combustible liquid and vapor.

HEALTH HAZARDS

Potential Health Effects

Eye
May cause slight irritation.

Skin
May cause skin irritation.

Ingestion
Acute Aspiration Hazard.

Inhalation
Irritating to the nose, throat, and respiratory tract.

4. First Aid Information

Eye
Flush thoroughly with water. If irritation occurs get medical assistance

Skin
Wash with soap and water. Wash clothing separately before reuse.

Ingestion
If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

Inhalation
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.

NOTES TO PHYSICIAN
If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.

5. Fire Fighting Measures

Flash Point	125 F
FP Method	ASTM D93 (PMCC)

Extinguishing Media
Water fog, Dry chemical, Foam, or CO2.

Inappropriate Extinguishing Media
Straight Streams of Water.

Hazardous Combustion Products
Smoke, Fume, Incomplete combustion products, Oxides of carbon.

Fire fighting instructions
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Evacuate area and fight fire from a safe distance. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking supply. Water runoff can cause environmental damage. Dike and collect water used to fight fire.

Flammable Properties
Vapors are flammable and heavier than air. Vapors can travel to a source of ignition and flash back.

6. Accidental Release Measures

Personal Precautions
Use appropriate protective equipment (see Section 8). Avoid contact with skin, eyes, and clothing. Warn or evacuate occupants in surrounding and downwind areas if required due to toxicity or flammability of the material.

Wear a self-contained breathing apparatus and appropriate Personal protection. (See Exposure Controls/Personal Protection section.)

ENVIRONMENTAL PRECAUTIONS

Reporting
US regulations require reporting spills of this material that could reach any surface waters. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

Containment
Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basement or confined areas.

METHODS FOR CONTAINMENT AND CLEAN UP

Containment
Eliminate all ignition sources. Stop the flow of material, if this can be done without risk. Prevent entry into waterways, sewers, basement or confined areas.

Collect
Contain spilled liquid with sand or earth. DO NOT use combustible materials such as sawdust.

7. Handling and Storage

Handling
Avoid contact with skin and eyes. Use spark-proof tools and explosion-proof equipment.

Empty containers retain product residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner, or properly disposed of. Ground and bond containers when transferring material. DANGER: This product is considered a static-accumulating (non-conductive) flammable or combustible liquid. As a result, it may accumulate a static electric charge that could ignite accumulated vapors. Many non-conductive flammable or combustible liquids can accumulate static electricity during transfer and storage, even with proper grounding and bounding. Static sparks can readily ignite vapor-air mixtures within storage tanks.

Storage
Keep away from sources of ignition. Keep container closed when not in use. Store in a cool dry place.

8. Exposure Controls and Personal Protection

EXPOSURE LIMITS

Prevent generation of mists.

OIL MIST
OSHA PEL: MIST 5 MG/M3 8 HRS;
ACGIH TLV: MIST 5 MG/M3 8 HRS

PERSONAL PROTECTION

Specific Hygeine Measures
Always observe good personal hygiene measures, such as washing after handling the material before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

Eyes
Wear safety glasses with side shields (or goggles) and a face shield.

Skin Protection
Wear chemical resistant gloves and protective clothing.

Respirators
This material does not have established exposure limits. Wear a positive-pressure air-supplied respirator in situations where there may be potential for airborne exposure.

Engineering controls
Use explosion-proof ventilation equipment. Ventilation is normally required when handling or using this product to keep exposure to airborne contaminants below the exposure limit.

9. Physical and Chemical Properties

Physical State	LIQUID

Specific Gravity	0.772
Density lbs/Gal.	6.427
Color/Appearance	LIGHT AMBER
Odor	MILD
Boiling/Cond. Point	> 300 F
Solubility	INSOLUBLE IN H2O.
VOC %	70.1% E1868-10A(110 MIN @ 81C)
Viscosity	1.62 cST @ 40C

10. Stability and Reactivity

Reactivity
None expected.

Stability
Material is stable under normal conditions.

Hazardous Reactions
Hazardous polymerization will not occur.

Conditions To Avoid
Excessive heat. High energy sources of ignition.

Incompatible Materials
Strong oxidizers.

Thermal Decomposition
Incomplete combustion may produce carbon monoxide and other asphyxiants.

11. Toxicological Information

ACUTE ORAL TOXICITY

64742-48-9
LD50/ oral /rat : >10,000 mg/kg

ACUTE INHALATION TOXICITY

64742-48-9
LC50 / Inhalation/ Rats: 8.5 g/m3

ACUTE DERMAL TOXICITY

64742-48-9
LD50/ dermal/ rabbit: >3,160 mg/kg.

SKIN IRRITATION

Mild skin irritant to abraded skin.

EYE IRRITATION

Mildly irritating.

SKIN SENSITIZATION

No data available.

GERM CELL MUTAGENICITY

No data available.

Carcinogenicity
The major components of this product are not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

REPRODUCTIVE TOXICITY

Not determined.

STOT-SINGLE EXPOSURE

No data available.

STOT-REPEATED EXPOSURE

No data available.

ASPIRATION HAZARD

<20 cSt @ 100F; Potential for aspiration if swallowed. Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema.

12. Ecological Information

ECOTOXICITY EFFECTS

Material may cause long term adverse effects in the aquatic environment.

PERSISTENCE AND DEGRADABILITY

BIODEGRADATION
Expected to be inherently biodegradable.

13. Disposal Considerations

Waste Disposal Method
According to local, state, and federal regulations.

14. Transportation Information

LAND (DOT)- NON-BULK

NA1993, COMBUSTIBLE LIQUID, N.O.S (ALIPHATIC SOLVENT), COMBUSTIBLE LIQUID, PG III

LAND (DOT) BULK

UN NUMBER

UN1268 .

PROPER SHIPPING NAME

PETROLEUM DISTILLATES, N.O.S.

HAZARD CLASS

COMBUSTIBLE LIQUID

PACKING GROUP

III

DOT PROPER SHIPPING LABEL

PETROLEUM DISTILLATES, N.O.S. (ALIPHATIC SOLVENT), UN1268, 3, PG III

SEA (IMDG)

UN1268, PETROLEUM DISTILLATES, N.O.S.(ALIPHATIC SOLVENT), 3, PG III, (49°C c.c.)

AIR (IATA)

TRANSPORT DOCUMENT NAME

UN1268, PETROLEUM DISTILLATES, N.O.S.(ALIPHATIC SOLVENT), 3, PG III.

This material is not regulated under 49 CFR in a container of 119 gallon capacity or less when transported solely by land, as long as the material is not a hazardous waste, a marine pollutant, or specifically listed as a hazardous substance.

15. Regulatory Information

US REGULATIONS

SARA Sections 311 and 312
Immediate (Acute) Health Hazard: YES.
FIRE HAZARD: YES Delayed (Chronic) Health Hazard: NO Reactive Hazard: NO. Sudden Release of Pressure Hazard: NO.

SARA (313) TOXIC RELEASE INVENTORY

NONE

Comprehensive Environmental Response and Liability Act (CERCLA)
This material is not subject to any special reporting under the requirements of CERCLA.

EPCRA
This material contains no extremely hazardous substances.

IARC

No components present at 0.1% or greater are listed on IARC.

U.S. Toxic Substances Control Act TSCA
All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

JAPAN INVENTORY (ENCS)

All components listed.

AUSTRALIAN INVENTORY (AICS)

All components listed.

KOREA INVENTORY (KECI)

All components listed.

CHINA INVENTORY (IECSC)

All components listed.

PHILIPPINES INVENTORY (PICCS)

All components listed.

16. Other Information

Disclaimer
The information in this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any representation or warranty expressed or implied, regarding its accuracy or correctness. The conditions or methods of handling, storage, use, and disposal of the product are beyond our control and may be beyond our knowledge. Therefore, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with the handling, storage, use, or disposal of the product.

LEGEND
DOT- Department of Transportation; IMDG-International Maritime Dangerous Goods; IATA- International Air Transport Association; SARA-Superfund Amendments and Reauthorization Act; CERCLA-Comprehensive Environmental Response, Compensation, and Liability Act; EPCRA-Emergency Planning and Community Right-to-Know Act; IARC-International Agency for Research on Cancer. STOT-Specific Target Organ Toxicity.
EL.4818.V2.R3

MSDS Document

Product ENSTAMP EM-8G-T

1. Chemical Product and Company Identification

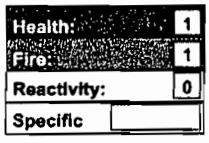
Product ENSTAMP EM-8G-T

Synonyms: WATEREXTENDABLE METALWORKING FLUID

MSDS ID EL4929

Engineered Lubricants Co.
11525 Rock Island Court
Maryland Heights , MO 63043

Contact Name
msds@englube.com
Phone Number
(314)872-9540 X3033
Emergency Phone
(800)424-9300
Revision Date 6/28/2013



2. Composition and Information on Ingredients

Ingredient	CAS Number	Weight %	ACGIH TLV	PEL	STEL
This material is not classified as hazardous in accordance with OSHA 29 CFR 1910	********				

3. Hazard Identification

Emergency Overview

APPEARANCE

Amber Liquid. Mild odor.

PHYSICAL HAZARDS

NONE

HEALTH HAZARDS

Potential Health Effects

Eye
May cause slight irritation.

Skin
Substance may cause slight skin irritation.

Ingestion
No hazard in normal industrial use.

Inhalation
Prolonged or excessive inhalation may cause respiratory tract irritation.

4. First Aid Information

Eye
Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes.

Skin
Wash with soap and water. Get medical attention if irritation develops or persists. Wash clothing separately before reuse.

Ingestion
If swallowed, do NOT induce vomiting. Give victim a glass of water or milk. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

Inhalation
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

NOTES TO PHYSICIAN

Treat symptomatically.

5. Fire Fighting Measures

Flash Point NOT DETERMINED-H2O.

Extinguishing Media
Water fog, Dry chemical, Foam, or CO2. CAUTION: Water stream may spread fire.

Hazardous Combustion Products
Smoke, Fume, Incomplete combustion products, Oxides of carbon.

Fire Fighting Instructions
In the event of fire, cool tanks with water spray. As in any fire, wear self-contained breathing

apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. Accidental Release Measures

PERSONAL PRECAUTIONS

Wear a self-contained breathing apparatus and appropriate Personal protection. (See Exposure Controls/Personal Protection section.)

ENVIRONMENTAL PRECAUTIONS

Clean-up
Avoid runoff into storm sewers and ditches which lead to waterways.

METHODS FOR CONTAINMENT AND CLEAN UP

Containment
Eliminate all ignition sources. Stop the flow of material, if this can be done without risk. Dike the spilled material, where this is possible.

Collect
Contain spilled liquid with sand or earth. DO NOT use combustible materials such as sawdust.

Clean-up
Forms smooth, slippery surfaces on floors, posing an accident risk. Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Vacuum or sweep up material and place in a disposal container.

7. Handling and Storage

Handling
Use with adequate ventilation. Avoid contact with skin and eyes. Wash thoroughly after handling.

Storage
Keep away from heat, sparks, and flame. Store in a cool place in original container and protect from sunlight. Keep container closed when not in use.

8. Exposure Controls and Personal Protection

EXPOSURE LIMITS

ACGIH TLV:
64742-52-5; OIL MIST; 5 mg/m3 TWA 8 hours

OSHA PEL:
64742-52-5; OIL MIST; 5 mg/m3 TWA 8 hours

PERSONAL PROTECTION

Specific Hygeine Measures
Always observe good personal hygiene measures, such as washing after handling the material before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

Eye
Wear safety glasses.

Skin Protection
Protective gloves and clothing are recommended.

Engineering Controls
Local exhaust ventilation may be necessary to control any air contaminants to within their TLVs during the use of this product. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

9. Physical and Chemical Properties

Physical State	LIQUID
Specific Gravity	0.92
Density lbs/Gal.	7.661
Color/Appearance	AMBER
Odor	MILD
pH	8.9 (~10% IN AQUEOUS SOLUTION)
Solubility	SOLUBLE IN H2O.
VOC %	29.8 G/L (E1868-10A)
Viscosity	35.42 cSt @ 100F

10. Stability and Reactivity

Reactivity
None expected.

Stability
Material is stable under normal conditions.

Hazardous Reactions
Hazardous polymerization will not occur.

Conditions To Avoid
Excessive heat. High energy sources of ignition. Open flame.

Incompatible Materials
Strong oxidizers. Isocyanates. Vinyl Acetates. Strong acids. Strong bases.

Thermal Decomposition
Incomplete combustion may produce carbon monoxide and other asphyxiants. Hydrogen chloride gas. Aldehydes. Sodium. Oxides of sulfur.

11. Toxicological Information

ACUTE ORAL TOXICITY

64742-52-5
LD50/ oral/ rat: > 5000mg/kg.

ACUTE INHALATION TOXICITY

64742-52-5
LC50/inhalation/rat/4 hr: 9.5 mg/L

ACUTE DERMAL TOXICITY

64742-52-5
LD50/ Dermal/ Rabbit: > 2000mg/kg

SKIN IRRITATION

Skin
Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).

EYE IRRITATION

No data available.

REPRODUCTIVE TOXICITY

No data available.

SKIN SENSITIZATION

No data available.

GERM CELL MUTAGENICITY

No data available.

CARCINOGENICITY

No components present at 0.1% or greater are listed on IARC.

STOT-SINGLE EXPOSURE

No data available.

STOT-REPEATED EXPOSURE

Inhalation
Prolonged or excessive inhalation may cause respiratory tract irritation.

ASPIRATION HAZARD

NONE

12. Ecological Information

Contains components that are hazardous to the environment.

ECOTOXICITY EFFECTS

EC50 Water Flea (Daphnia magna): > 1000mg/l 48 hours.

PERSISTENCE AND DEGRADABILITY

No data available.

13. Disposal Considerations

Waste Disposal Method
According to local, state, and federal regulations.

Contaminated Packaging
Empty containers should be taken to an approved waste handling site for local recycling or waste disposal.

14. Transportation Information

LAND (DOT)- NON-BULK

Not Regulated

LAND (DOT) BULK

Not Regulated

SEA (IMDG)

Not Regulated

AIR (IATA)

Not Regulated

15. Regulatory Information

US REGULATIONS

SARA Sections 311 and 312
Immediate (Acute) Health Hazard: YES.
Delayed (Chronic) Health Hazard: YES. Fire Hazard: NO. Reactive Hazard: NO.
Sudden Release of Pressure Hazard: NO.

SARA (313) TOXIC RELEASE INVENTORY

No known reportable quantities.

CERCLA (Comprehensive Environmental Response and Liability Act of 1980, S 103)

CERCLA
Reportable Quantities: Sodium dodecylbenzenesulfonate RQ: 40036 lbs.

EPCRA

No known reportable quantities.

IARC

No components listed on IARC.

U.S. STATE RIGHT TO KNOW

California Proposition 65-Chemicals Known to the State to Cause Cancer
No Components Listed.

16. Other Information

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LEGEND
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EL.4929.V2.R0

MSDS Document

Product ENCUT VAN OIL NPS-1

1. Chemical Product and Company Identification

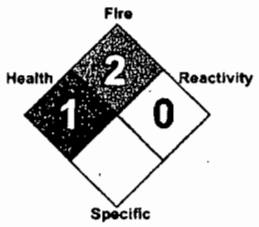
Product ENCUT VAN OIL NPS-1

Synonyms: ALIPHATIC HYDROCARBON

MSDS ID EL4967

Engineered Lubricants Co.
11525 Rock Island Court
Maryland Heights , MO 63043

Contact Name
msds@englube.com
Phone Number
(314)872-9540 X3033
Emergency Phone
(800)424-9300
Revision Date 3/18/2013



Health:	1
Fire:	2
Reactivity:	0
Specific	

2. Composition and Information on Ingredients

Ingredient	CAS Number	Weight %	ACGIH TLV	PEL	STEL
REPORTABLE HAZARDOUS COMPONENTS	1111-11-11				
Distillates, petroleum, hydrotreated light	64742-47-8	35% - 55%	5 mg/m3-TWA	5 mg/m3-TWA	OIL MIST
Naphtha(petroleum), hydrotreated heavy	64742-48-9	34% - 54%			

3. Hazard Identification

Emergency Overview

Warning: Combustible Liquid and Vapor.

APPEARANCE

Light Amber Liquid.

PHYSICAL HAZARDS

Combustible liquid and vapor.

HEALTH HAZARDS

Potential Health Effects

Eye
May cause slight irritation.

Skin
May cause skin irritation.

Ingestion
Acute Aspiration Hazard.

Inhalation
Irritating to the nose, throat, and respiratory tract.

4. First Aid Information

Eye
Flush thoroughly with water. If irritation occurs get medical assistance

Skin
Wash with soap and water. Wash clothing separately before reuse.

Ingestion
If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

Inhalation
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.

NOTES TO PHYSICIAN
If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.

5. Fire Fighting Measures

Flash Point	147 F
FP Method	ASTM D93 (PMCC)

Extinguishing Media
Water fog, Dry chemical, Foam, or CO2.

Inappropriate Extinguishing Media
Straight Streams of Water.

Hazardous Combustion Products
Smoke, Fume, Incomplete combustion products, Oxides of carbon.

Fire fighting instructions
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Evacuate area and fight fire from a safe distance. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking supply. Water runoff can cause environmental damage. Dike and collect water used to fight fire.

Flammable Properties
Vapors are flammable and heavier than air. Vapors can travel to a source of ignition and flash back.

6. Accidental Release Measures

Personal Precautions
Use appropriate protective equipment (see Section 8). Avoid contact with skin, eyes, and clothing. Warn or evacuate occupants in surrounding and downwind areas if required due to toxicity or flammability of the material.

Wear a self-contained breathing apparatus and appropriate Personal protection. (See Exposure Controls/Personal Protection section.)

ENVIRONMENTAL PRECAUTIONS

Reporting
US regulations require reporting spills of this material that could reach any surface waters. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

Containment
Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basement or confined areas.

METHODS FOR CONTAINMENT AND CLEAN UP

Containment
Eliminate all ignition sources. Stop the flow of material, if this can be done without risk. Prevent entry into waterways, sewers, basement or confined areas.

Collect
Contain spilled liquid with sand or earth. DO NOT use combustible materials such as sawdust.

7. Handling and Storage

Handling
Avoid contact with skin and eyes. Avoid breathing (dust, vapor, mist, gas). Use spark-proof

tools and explosion-proof equipment. Empty containers retain product residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner, or properly disposed of. Ground and bond containers when transferring material. DANGER: This product is considered a static-accumulating (non-conductive) flammable or combustible liquid. As a result, it may accumulate a static electric charge that could ignite accumulated vapors. Many non-conductive flammable or combustible liquids can accumulate static electricity during transfer and storage, even with proper grounding and bounding. Static sparks can readily ignite vapor-air mixtures within storage tanks.

Storage
Keep away from sources of ignition. Keep container closed when not in use. Store in a cool dry place.

8. Exposure Controls and Personal Protection

EXPOSURE LIMITS

Prevent generation of mists.

OIL MIST
OSHA PEL: MIST 5 MG/M3 8 HRS;
ACGIH TLV: MIST 5 MG/M3 8 HRS

PERSONAL PROTECTION

Specific Hygeine Measures
Always observe good personal hygiene measures, such as washing after handling the material before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

Eyes
Wear safety glasses with side shields (or goggles) and a face shield.

Skin Protection
Wear chemical resistant gloves and protective clothing.

Respirators
This material does not have established exposure limits. Wear a positive-pressure air-supplied respirator in situations where there may be potential for airborne exposure.

Engineering controls
Use explosion-proof ventilation equipment. Ventilation is normally required when handling or using this product to keep exposure to airborne contaminants below the exposure limit.

9. Physical and Chemical Properties

Physical State	LIQUID

Specific Gravity	0.8
Density lbs/Gal.	6.66
Color/Appearance	LIGHT AMBER
Odor	MILD
Boiling/Cond. Point	> 250 F
Solubility	INSOLUBLE IN H2O.
VOC %	73.6% E1868-10A (110 MIN @ 81C
Percent Volatile	> 10% (CONTAINS SOLVENT)
Viscosity	1.88 cSt @ 100F

10. Stability and Reactivity

Reactivity
None expected.

Stability
Material is stable under normal conditions.

Hazardous Reactions
Hazardous polymerization will not occur.

Conditions To Avoid
Excessive heat. High energy sources of ignition.

Incompatible Materials
Strong oxidizers.

Thermal Decomposition
Incomplete combustion may produce carbon monoxide and other asphyxiants.

11. Toxicological Information

ACUTE ORAL TOXICITY

64742-48-9
LD50/ oral /rat : >10,000 mg/kg

ACUTE INHALATION TOXICITY

64742-48-9
LC50 / Inhalation/ Rats: 8.5 g/m3

ACUTE DERMAL TOXICITY

64742-48-9
LD50/ dermal/ rabbit: >3,160 mg/kg.

SKIN IRRITATION

Mild skin irritant to abraded skin.

EYE IRRITATION

Mildly irritating.

SKIN SENSITIZATION

No data available.

GERM CELL MUTAGENICITY

No data available.

Carcinogenicity
The major components of this product are not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

REPRODUCTIVE TOXICITY

Not determined.

STOT-SINGLE EXPOSURE

No data available.

STOT-REPEATED EXPOSURE

No data available.

ASPIRATION HAZARD

<20 cSt @ 100F; Potential for aspiration if swallowed. Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema.

12. Ecological Information

ECOTOXICITY EFFECTS

Material may cause long term adverse effects in the aquatic environment.

PERSISTENCE AND DEGRADABILITY

BIODEGRADATION
Expected to be inherently biodegradable.

13. Disposal Considerations

Waste Disposal Method
According to local, state, and federal regulations.

14. Transportation Information

LAND (DOT)- NON-BULK

NA1993, COMBUSTIBLE LIQUID, N.O.S (ALIPHATIC SOLVENT), COMBUSTIBLE LIQUID, PG III

LAND (DOT) BULK

UN NUMBER

UN1268

PROPER SHIPPING NAME

PETROLEUM DISTILLATES, N.O.S.

HAZARD CLASS

COMBUSTIBLE LIQUID

PACKING GROUP

III

DOT PROPER SHIPPING LABEL

PETROLEUM DISTILLATES, N.O.S. (ALIPHATIC SOLVENT), UN1268, 3, PG III

SEA (IMDG)

UN1268, PETROLEUM DISTILLATES, N.O.S.(ALIPHATIC SOLVENT), 3, PG III, (49°C c.c.)

AIR (IATA)

TRANSPORT DOCUMENT NAME

UN1268, PETROLEUM DISTILLATES, N.O.S.(ALIPHATIC SOLVENT), 3, PG III.

This material is not regulated under 49 CFR in a container of 119 gallon capacity or less when transported solely by land, as long as the material is not a hazardous waste, a marine pollutant, or specifically listed as a hazardous substance.

15. Regulatory Information

US REGULATIONS

SARA Sections 311 and 312
Immediate (Acute) Health Hazard: YES.
FIRE HAZARD: YES Delayed (Chronic) Health Hazard: NO Reactive Hazard: NO. Sudden Release of Pressure Hazard: NO.

SARA (313) TOXIC RELEASE INVENTORY

NONE

Comprehensive Environmental Response and Liability Act (CERCLA)
This material is not subject to any special reporting under the requirements of CERCLA.

EPCRA
This material contains no extremely hazardous substances.

IARC

No components present at 0.1% or greater are listed on IARC.

U.S. Toxic Substances Control Act TSCA
All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

JAPAN INVENTORY (ENCS)

All components listed.

AUSTRALIAN INVENTORY (AICS)

All components listed.

KOREA INVENTORY (KECI)

All components listed.

CHINA INVENTORY (IECSC)

All components listed.

PHILIPPINES INVENTORY (PICCS)

All components listed.

16. Other Information

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LEGEND
DOT- Department of Transportation; IMDG-International Maritime Dangerous Goods; IATA- International Air Transport Association; SARA-Superfund Amendments and Reauthorization Act; CERCLA-Comprehensive Environmental Response, Compensation, and Liability Act; EPCRA-Emergency Planning and Community Right-to-Know Act; IARC-International Agency for Research on Cancer. STOT-Specific Target Organ Toxicity.
EL4967.V2.R3

SAFETY-KLEEN PREMIUM SOLVENT

MATERIAL SAFETY DATA SHEET FOR U.S.A. AND CANADA

SECTION 1 – PRODUCT AND PREPARATION INFORMATION

PRODUCT INFORMATION

IDENTITY (TRADE NAME): SAFETY-KLEEN PREMIUM SOLVENT

SYNONYMS: Parts Washer Solvent; Petroleum Distillates; Petroleum Naphtha; Naphtha, Solvent; Stoddard Solvent; Mineral Spirits

SK PART NUMBER(S): 6605

FAMILY/CHEMICAL NAME: Petroleum hydrocarbon

PRODUCT USE: Cleaning and degreasing metal parts.
If this product is used in combination with other chemicals, refer to the Material Safety Data Sheets for those chemicals.

24-HOUR EMERGENCY TELEPHONE	*MEDICAL:*	*TRANSPORTATION:*
These numbers are for emergency use only. If you desire non-emergency information about this product, please call a telephone number listed below.	1-800-752-7869 (U.S.A.) 1-312-942-5969 (CANADA) RUSH POISON CONTROL CENTER CHICAGO, ILLINOIS, U.S.A.	1-703-588-4660 (U.S.A.) SAFETY-KLEEN ENVIRONMENT, HEALTH AND SAFETY DEPARTMENT 1-613-996-6666 (CANADA) CANUTEC

MANUFACTURER/SUPPLIER: Safety-Kleen Corp. - 1000 North Randall Road - Elgin, IL, U.S.A. 60123-7857
Telephone number: 1-800-669-5840
Safety-Kleen Canada Inc. - 300 Woolwich Street South - Breslau, ON, Canada N0B 1M0
Telephone number: 1-800-265-2792

PREPARATION INFORMATION

MSDS FORM NO.: 82529 ***REVISION DATE:*** February 2, 1994

ORIGINAL ISSUE DATE: January 7, 1993 ***SUPERSEDES:*** February 11, 1993

PREPARED BY: Product MSDS Coordinator ***APPROVED BY:*** MSDS Task Force

TELEPHONE NUMBER: For Product Technical Information Call 1-312-694-2700 (U.S.A.); 1-519-641-2291 (Canada)

SECTION 2 – HAZARDOUS COMPONENTS

NAME	SYNONYM	CAS NO.	WT%	OSHA PEL TWA	OSHA PEL STEL	ACGIH TLV TWA	ACGIH TLV STEL	OTHER DATA LD[a]	OTHER DATA LC[b]
Distillates (petroleum) hydrotreated light	Solvent naphtha (petroleum), heavy aliph., hydrotreated	64742-47-8[c,f]	100	500[e,d] ppm	N.Av.	100[e] ppm	N.Av.	>5000	>5500[e] mg/m^3/4 hours

N.Av. = Not Available
[a]Oral-Rat LD50 (mg/kg)
[b]Inhalation-Rat LC50
[c]For Stoddard Solvent CAS 8052-41-3
[d]Reference source 1910.1000 29 CFR Ch. XVII (7-1-92 edition): 100 ppm TWA
[e]For Stoddard Solvent: 29500 mg/m^3 (approximately 5000 ppm) IDLH
[f]For Petroleum Distillates: 10000 ppm IDLH

SAFETY-KLEEN PREMIUM SOLVENT

MATERIAL SAFETY DATA SHEET FOR U.S.A. AND CANADA

SECTION 3 – EMERGENCY AND FIRST AID PROCEDURES

EYES: For direct contact, flush eyes with water for 15 minutes lifting upper and lower lids occasionally. If irritation or redness from exposure to vapor or mist develops, move victim away from exposure into fresh air. Consult physician if irritation or pain persists.

SKIN: Remove contaminated clothing and shoes. Wash skin twice with soap and water. Consult physician if irritation or pain persists.

INHALATION: (Breathing) Remove to fresh air immediately. Use oxygen if there is difficulty breathing or artificial respiration if breathing has stopped. Do not leave victim unattended. Seek immediate medical attention if necessary.

INGESTION: (Swallowing) Seek immediate medical attention. Do NOT induce vomiting. If spontaneous vomiting occurs, keep head below hips to avoid aspiration (breathing) into the lungs.

SPECIAL NOTE TO PHYSICIAN: Treat symptomatically and supportively. Administration of gastric lavage, if warranted, should be performed by qualified medical personnel. Contact Rush Poison Control Center (see Section 1) for additional medical information.

SECTION 4 – HEALTH HAZARD DATA AND TOXICOLOGICAL PROPERTIES

PRIMARY ROUTES OF EXPOSURE: Eye and skin contact; inhalation, ingestion.

EXPOSURE LIMITS: See Section 2.

SIGNS AND SYMPTOMS OF EXPOSURE

ACUTE:

Eyes: Contact with liquid or exposure to vapors may cause mild to moderate irritation with watering, stinging, or redness.

Skin: Contact with liquid or exposure to vapors may cause mild to severe irritation. Contact with liquid or exposure to vapors may cause redness, drying, cracking, burning, or dermatitis. No significant skin absorption hazard.

Inhalation (Breathing): High concentrations of vapor or mist may irritate the nose, throat, or respiratory tract. High concentrations of vapor or mist may cause nausea, vomiting, or irregular heartbeat. High concentrations of vapor or mist may cause headaches, dizziness, incoordination, numbness, unconsciousness, and other central nervous system effects. Massive acute exposure may result in rapid central nervous system depression with sudden collapse, deep coma, and death.

Ingestion (Swallowing): Low order of acute oral toxicity. May cause throat irritation, nausea, vomiting, myocardial (muscular tissue of the heart) injury, arrhythmias (irregular heartbeats), and symptoms of central nervous system effects as listed for *ACUTE Inhalation*. Breathing material into the lungs during ingestion or vomiting may cause mild to severe pulmonary (lung) injury and possibly death.

CHRONIC: Prolonged or repeated eye contact may cause conjunctivitis. Prolonged or repeated skin contact may cause drying, cracking, dermatitis, or burns.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Individuals with pre-existing lung, cardiac, central nervous system, or skin disorders may have increased susceptibility to the effects of exposure.

CARCINOGENICITY: Not applicable.

OTHER POTENTIAL HEALTH HAZARDS: The following information is required by Canadian WHMIS regulations. Irritancy is covered in Signs and Symptoms of Exposure in Section 4. There is no known human sensitization, toxicologically synergistic product, reproductive toxicity, mutagenicity, or teratogenicity associated with this product as a whole.

SAFETY-KLEEN PREMIUM SOLVENT

MATERIAL SAFETY DATA SHEET FOR U.S.A. AND CANADA

SECTION 5 – FIRE AND EXPLOSION HAZARD DATA

EMERGENCY RESPONSE GUIDE NUMBER:	27 Reference *1993 Emergency Response Guidebook* (RSPA P 5800.6)
FIRE AND EXPLOSION HAZARDS:	Decomposition and combustion products may be toxic. Heated containers may rupture, explode, or be thrown into the air. Vapors are heavier than air and may travel great distances to ignition source and flash back. Vapor explosion hazard indoors, outdoors, or in sewers. Run-off to sewer may create fire or explosion hazard. Not sensitive to mechanical impact. Material may be sensitive to static discharge, which could result in fire or explosion.
FIRE FIGHTING PROCEDURES:	Keep storage containers cool with water spray. Positive-pressure, self-contained breathing apparatus (SCBA) and structural firefighters' protective clothing will provide limited protection.
EXTINGUISHING MEDIA:	Carbon dioxide, foam, dry chemical, or water spray.
CONDITIONS OF FLAMMABILITY:	Heat, sparks, or flame.
FLASH POINT:	150°F (66°C) (approximately) Tag Closed Cup
AUTOIGNITION TEMPERATURE:	440°F (227°C) (minimum)
FLAMMABLE LIMITS IN AIR:	***LOWER:*** 1.0 Vol. % ***UPPER:*** 9.3 Vol. %
HAZARDOUS COMBUSTION PRODUCTS:	Burning may produce carbon monoxide.

SECTION 6 – REACTIVITY DATA

STABILITY:	Stable under normal temperatures and pressures, and not reactive with water.
INCOMPATIBILITY (MATERIALS AND CONDITIONS TO AVOID):	Avoid strong acids, bases, or oxidizing agents. Chlorine may cause a violent reaction. Avoid heat, sparks, or flame.
HAZARDOUS POLYMERIZATION:	Not known to occur under normal temperatures and pressures.
HAZARDOUS DECOMPOSITION PRODUCTS:	None under normal temperatures and pressures.

SECTION 7 – PREVENTIVE MEASURES

PRECAUTIONS FOR SAFE USE AND HANDLING

HANDLING PRECAUTIONS:	Keep away from heat, sparks, or flame. Where explosive mixtures may be present, equipment safe for such locations should be used. When transferring material, metal containers, including tank cars and trucks, should be grounded and bonded. Avoid contact with eyes, skin, clothing, or shoes. Use in well ventilated area and avoid breathing vapor or mist.
PERSONAL HYGIENE:	Use good personal hygiene. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco products. Clean contaminated clothing, shoes, and protective equipment before reuse. Discard contaminated clothing, shoes, or protective equipment if they cannot be thoroughly cleaned.
SHIPPING AND STORING PRECAUTIONS:	Keep container tightly closed when not in use and during transport. Do not pressurize, drill, cut, heat, weld, braze, grind, or expose containers to flame or other sources of ignition. Empty product containers may contain product residue. See Section 9 for Packing Group information.

SAFETY-KLEEN PREMIUM SOLVENT

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SPILL PROCEDURES:	Remove all ignition sources. Stop leak if you can do it without risk. Wear protective equipment specified in Section 7, CONTROL MEASURES. Ventilate area and avoid breathing vapor or mist. Water spray may reduce vapor, but it may not prevent ignition in closed spaces. For large spills, isolate area and deny entry; dike far ahead of liquid spill for later disposal. Contain away from surface waters and sewers. If possible, contain as a liquid for possible re-refining or sorb with compatible sorbent material and shovel with a non-sparking tool into closable container for disposal. See *1993 Emergency Response Guidebook* (RSPA P 5800.6) Guide Number 27 for more information.
WASTE DISPOSAL METHODS:	Dispose in accordance with federal, state, provincial, and local regulations. Contact Safety-Kleen regarding recycling or proper disposal.

CONTROL MEASURES

EYE PROTECTION:	Where there is likelihood of eye contact, wear chemical goggles; do NOT wear contact lenses.
PROTECTIVE GLOVES:	Use Nitrile, Viton®, or equivalent gloves to prevent contact with skin. Use of Butyl rubber, natural rubber, or equivalent gloves is not recommended.
RESPIRATORY PROTECTION:	Use NIOSH/MSHA-approved respiratory protective equipment when concentration of vapor or mist exceeds applicable exposure limit. A self-contained breathing apparatus (SCBA) and full protective equipment are required for large spills or fire emergencies. Selection and use of respiratory protective equipment should be in accordance in the U.S.A. with OSHA General Industry Standard 29 CFR 1910.134 or in Canada with CSA Standard Z94.4-M1982.
ENGINEERING CONTROLS:	Provide process enclosure or local ventilation needed to maintain concentration of vapor or mist below applicable exposure limits. Where explosive mixtures may be present, equipment safe for such locations should be used.
OTHER PROTECTIVE EQUIPMENT:	Where spills and splashes are possible, wear appropriate solvent-resistant boots, apron, or other protective clothing. Clean water should be available in work areas for flushing the eyes and skin.

SECTION 8 – PHYSICAL DATA

PHYSICAL STATE, APPEARANCE AND ODOR:	Liquid, clear and colorless (water white), with characteristic hydrocarbon odor.
ODOR THRESHOLD:	30 ppm (based on Stoddard Solvent)
SPECIFIC GRAVITY:	0.78 to 0.82 (60°/60°F) (15.6°/15.6°C) (water = 1)
DENSITY:	6.5 to 6.8 lb/US gal (780 to 820 g/l)
VAPOR DENSITY:	5.3 to 6.2 (air = 1)
VAPOR PRESSURE:	0.4 to 1 mm Hg at 68°F (20°C)
BOILING POINT:	350° to 470°F (177° to 244°C)
FREEZING POINT:	less than -45°F (-43°C)
pH:	Not applicable.
VOLATILE ORGANIC COMPOUNDS: (US EPA DEFINITION)	100 WT%; 6.5 to 6.8 lb/US gal; 780 to 820 g/l
EVAPORATION RATE:	less than 0.1 (butyl acetate = 1)
SOLUBILITY IN WATER:	Insolubles.

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COEFFICIENT OF WATER/OIL DISTRIBUTION:	less than 1
MOLECULAR WEIGHT:	155 to 180

SECTION 9 -- OTHER REGULATORY INFORMATION

TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME:	COMBUSTIBLE LIQUID, N.O.S. (PETROLEUM NAPHTHA)
DOT CLASS:	Combustible Liquid
DOT ID NUMBER:	NA1993 PG III
TDG CLASSIFICATION:	Not regulated.
SARA TITLE III:	Product does not contain toxic chemicals subject to the requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372. Product poses the following physical and health hazards as defined in 40 CFR Part 370 and is subject to the requirements of sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act of 1986: Immediate (Acute) Health Hazard Delayed (Chronic) Health Hazard Fire Hazard
WHMIS CLASSIFICATION:	B3, Flammable and Combustible Material, Combustible Liquids; D2B, Poisonous and Infectious Material, Materials Causing Other Toxic Effects, Toxic Material
TSCA:	All of the components for this product are listed on, or are exempted from the requirement to be listed on, the TSCA Inventory.
CALIFORNIA:	This product is not for sale or use in the State of California.